NINETY-NINTH YEAR OF SERVICE TO THE METAL WORKING INDUSTRY

JUN - 1 1934

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THE IRON AGE

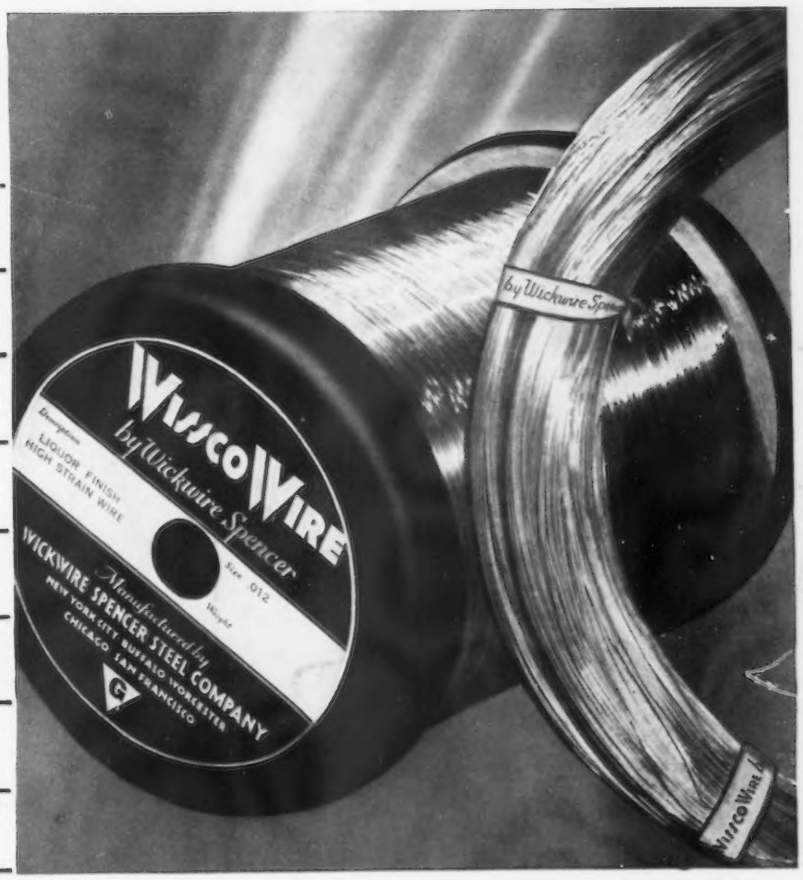
PRODUCTION -:- MANAGEMENT

JUNE 21, 1934

PROCESSES -:- NEWS

check everything

Physical Characteristics	✓
Surface and Finish	✓
Chemical Characteristics	✓
Micro - Structure	✓
Coils or Spools	✓
Weight of Package	✓
Dimensions of Package	✓
Type of Wrapping	✓



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THE IRON AGE — June 21, 1934

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▲▲▲ THE IRON AGE ▲▲▲

JUNE 21, 1934

ESTABLISHED 1855 Vol. 133, No. 25

Unionists Disclose Convincing Reasons For Open Shop

THE "rank and file" committee of the Amalgamated steel workers' union should receive a vote of thanks from the steel industry for performing a public service. The committee has, unwittingly, disclosed to the general public compelling reasons why the union should *not* be recognized.

This disclosure was made in the open letter which the rank and file committee, against the wishes of the elected officers of the union, addressed to the President of the United States. Here are some pertinent extracts from it:

We understand you have left for a week-end cruise on the Sequoia. We wish we could join you, but we must return to our lodges to report that all we got out of your National Recovery Administration and Section 7A was an offer to tighten the company union chains that bind workers in the steel industry.

* * * * ***We have lost the faith which we held in your Administration, which promised justice and a new deal to the nation's workers.***

* * * * ***If you really mean to abide by your own recovery law, the least you can do is to summon the steel manufacturers to Washington for a genuine collective bargaining conference with the steel workers.***

* * * * ***It is useless for us to waste any more time in Washington in the national run around, rejecting traps set for us. We are returning home today to prepare for action.***

* * * * ***We conferred a favor on the Administration by warning you of the consequences of non-enforcement of Section 7A. If the government will not help us, then we must use the only means left to us.***

YOU might show this letter to any of your laymen friends who think that the steel industry is reactionary in withstanding the demand of a vociferous minority for a "closed shop." After they have read it, ask them the following questions:

Would *you* be willing to convey authority and spokesmanship, through recognition, upon men so clearly lacking in common sense and in respect for the highest authority as to send this scurrilous letter to the President?

Do you think that you could sit patiently across the table from men of such intemperate and abusive dispositions and bargain collectively with them?

Would *you* invest a dollar in any enterprise where labor control and representation were in such reckless hands?

* * * *

The excuse has been offered by union authorities that this action was unauthorized and was taken against the advice and wish of the union officers and of the A. F. of L. But here again is another compelling reason for refusing recognition.

Would *you* care to do business with an organization that is without legal responsibility and which is so manifestly unable to control the action of its subordinates?

* * * *

THE leaders of the steel industry can offer many additional reasons for its adamant stand in the matter of union recognition, but it should not be necessary. The reasons furnished by the action of the "rank and file" committee should be entirely sufficient to settle the case in the mind of any intelligent, fair minded man in any walk of life.



Enameling Forges Ahead as a

By LeROY W. ALLISON and MALCOLM B. CATLIN

CONSIDERED distinctly as a metal finish, porcelain enamel readily can be said to be the most popular material for this purpose now in use, and decidedly by a wide margin. Its value and merit have become universally known in this country and throughout the world. The notable advances made in technique and accomplishments in porcelain enameling during the past few years have resulted in a growth in that time probably more pronounced than in any other branch of the metal-working industry.

This is evidenced by almost countless examples of porcelain enameled ware and equipment for homes, public buildings, commercial and industrial establishments, as well as products for other service. And what has brought about this wide popularity and demand for porcelain enamel? To an appreciable degree the answer is found in the practically simultaneous development of an excellent enameling technique, and iron and steel production for base material, the latter making possible a high-grade, adaptable metal at reasonable cost.

When it is recalled that 20 to 25 years ago, the word "enamel," in the commercial sense, was identified largely with granite-colored pots and pans and associated quite generally with cheapness, the evolution of this industry and its rapid progress to present high status indicate future possibilities of vast extent. The porcelain enameling field presents a bright market outlook for large consumption of adaptable iron and steel.

From the ponderous white-enameled bath tubs, with grotesque legs and wooden rims of years ago, the immediate stretch of imagination trends to porcelain enameled skyscrapers, residences, tank cars and many other siz-



Bathroom in Indianapolis home of James Whitcomb Riley.



Typical bathroom of 20 years ago.

Metal Finish . . .

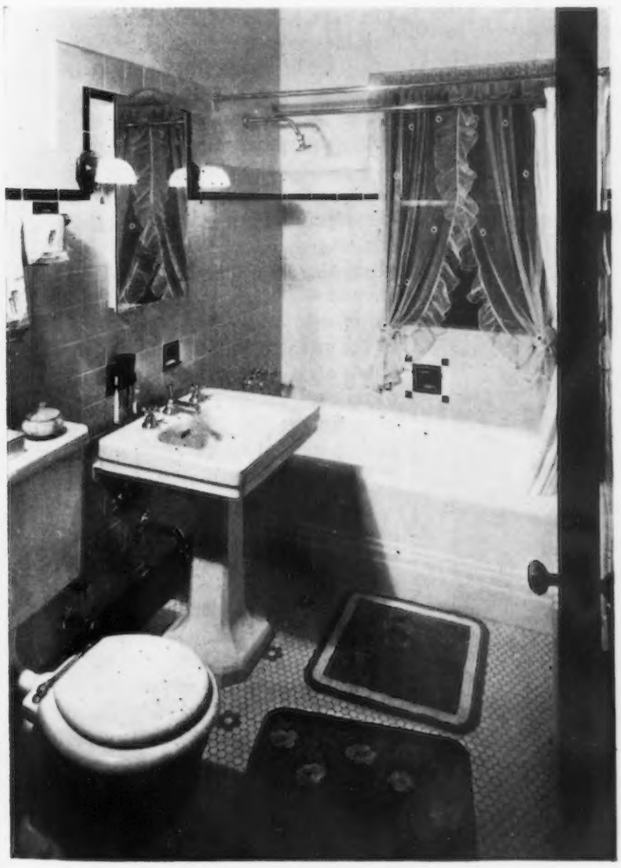
ENAMELING of both sheet steel and cast iron is encompassed in the accompanying article. Specific attention to the preparation of the metal for the enamel coating and notable advances in the enameling art have contributed to the broadening of the fields of application of the vitreous enamel finish for iron and steel. These are covered in the comprehensive survey and analysis which the authors have made. A second article will deal with phases of both wet and dry process enameling, and the expanding range of utility. Subsequent articles will be devoted to porcelain enameled steel buildings and to general enameling technique.

able structures, as well as automobile and equipment parts; likewise, scores of smaller products for domestic, commercial and industrial use. All are definitely within the range of porcelain enameling. Whatever such developments will mean to that industry will be reflected correspondingly in the metal-working field, for to utilize an enamel there must be something to which to apply it—and iron or steel is that logical something. While enamel application is possible to certain other base and composition metals and materials, and even to glass and clay objects, these are of minor significance as compared with the major materials noted.

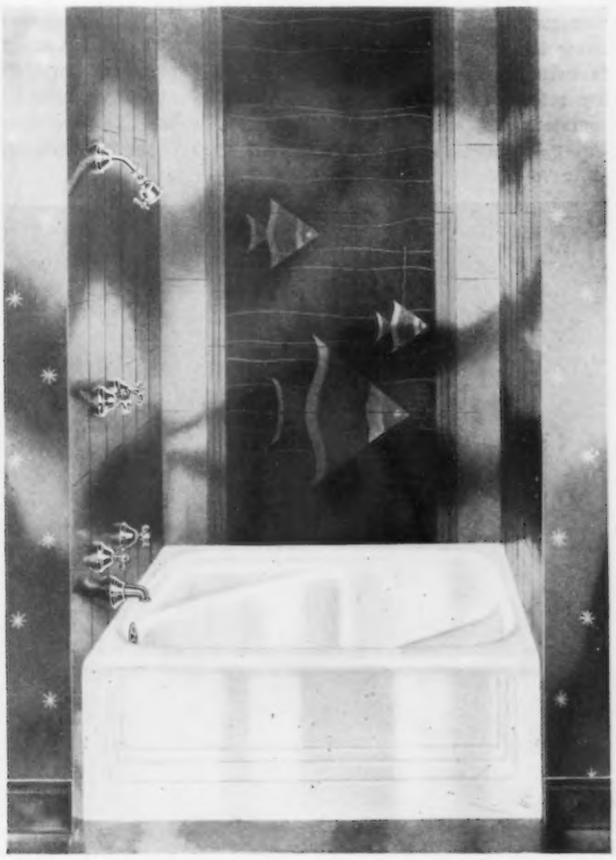
Fortunately, enameling technique has attained a high degree of perfection almost precisely at the time when it is most advantageous. The definite trend toward units of lighter design, the advancing movement for improved sanitation in the home and elsewhere, the demand for increased conveniences for higher efficiency, and the rapid rise in color as the predominating note in modern design and public favor have combined to give porcelain enameling an unusual opportunity for immediate development in products and markets.

Growth of the Industry

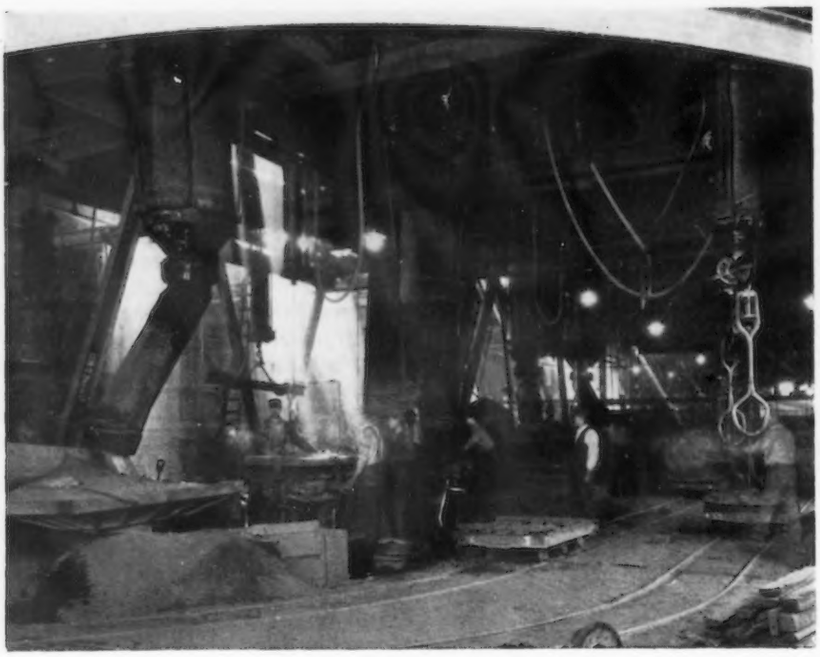
STATISTICAL information regarding the growth of the porcelain enameling industry is exceedingly difficult, if not impossible, to secure accurately. As those interested in this field have come to realize, its impor-



Bathroom of the last decade.



Today's Neo-Angle combination bathtub.

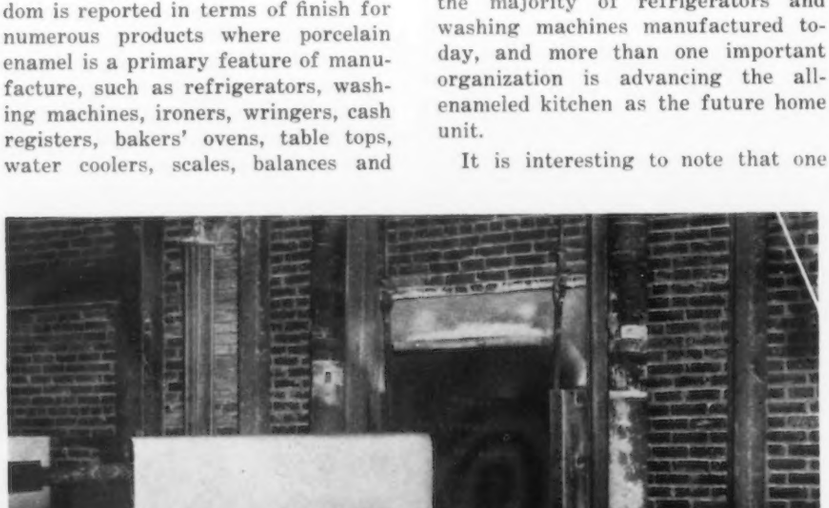


Continuous molding unit in foundry of bathtub manufacturer.

tance has been obscured by the practice of many equipment manufacturers to consider the porcelain enamel department merely as another type of finishing shop, comparable to paint and lacquer branches of activity.

In consequence, annual output seldom is reported in terms of finish for numerous products where porcelain enamel is a primary feature of manufacture, such as refrigerators, washing machines, ironers, wringers, cash registers, bakers' ovens, table tops, water coolers, scales, balances and scores of other specialties in great variety. Ordinary observation, however, proves conclusively that there has been sizable increase in production of ware and equipment of this character. Further, porcelain enamel has come to be the standard finish for the majority of refrigerators and washing machines manufactured today, and more than one important organization is advancing the all-enameled kitchen as the future home unit.

It is interesting to note that one



Charging enameled ware into furnace for fusing.



representative branch of the industry has made possible the compilation of definite statistics for a certain period of years. In 1927, stove manufacturers adopted the practice of reporting annual sales in terms of finish, thereby indicating, if only indirectly, the growing importance of porcelain enamel as a selling stimulus. The accompanying charts show how purchasers gave preference to this type of finish in 1927 and 1931, the latest available accurate figures.

In the first year noted, 1927, 61.6 per cent of the expenditures for cooking stoves and ranges and room heaters (coal, wood, gas, kerosene and gasoline, but not electric) were for units of porcelain enameled type. In 1931, this percentage had advanced to 75.6 per cent, an increase of 14 points, or 23 per cent. Of further interest, the detailed figures show that it is not the city dweller alone who is showing partiality for enamel finish, as the greatest advance is found in stoves using coal and wood fuel, sold largely to the rural population. For this character of stove unit, 57 per cent of the purchases in 1927 were for the enameled finish; in 1931, the proportion had increased to 72 per cent. And it is as high, if not higher, today.

During the period of comparison outlined, the sales of enameled gas stoves advanced 12 points, or from 73 to 85 per cent. It must be held in mind, too, that these increases occurred late in the history of the porcelain enameled stove, or at a time when the rate of advance normally might be expected to slow down, owing to the limitations of the remaining potential markets.

Enameled sanitary ware is another field providing some pertinent figures, illustrating effectively the expanding market for iron and steel in this branch of manufacture. In the rela-



These two diagrams show the increasing amount of enameling used in construction of cooking stoves and ranges and room heaters. (Sales of coal and wood, gas, kerosene and gasoline appliances, but not electric are covered.)

tively short time between 1913 and 1926, the latter a record year for the industry, the annual sales of enameled iron bath tubs advanced from 477,972 to 1,195,142 units, an increase of 151 per cent. And to this may be added a 138 per cent rise for enameled iron lavatories, 113 per cent advance for enameled iron sinks, and 58 per cent increase for miscellaneous enameled sanitary fixtures in the same span of years. This pictures rather forcibly the importance of a single branch of the enameling industry to base material producers.

The gross output of enameled iron sanitary ware in 1927 had a valuation of $67,303,685; in 1929, a year of decline for this line of trade, the value of production was $45,288,155. During the last noted year, enameled stove manufacture of various types attained a total of $97,276,820 in valuation, while kitchen utensils added another $23,000,000; hospital ware, $750,000, and miscellaneous stamped and enameled ware, $11,000,000, in round figures.

Thus the products of these classified enameling fields alone totaled more than $175,000,000 in that year, 1929. This compilation does not include refrigerators, scales, outdoor signs and numerous other enameled metal specialties, for which even approximate figures are unobtainable, as stated; if these were added, the gross valuation would be enhanced by many millions of dollars. Depression times have had their effect on the enameling industry, just as in other lines, census figures of the Government for 1931 giving the value of enameled metal ware produced in the country in that year as $130,000,000.

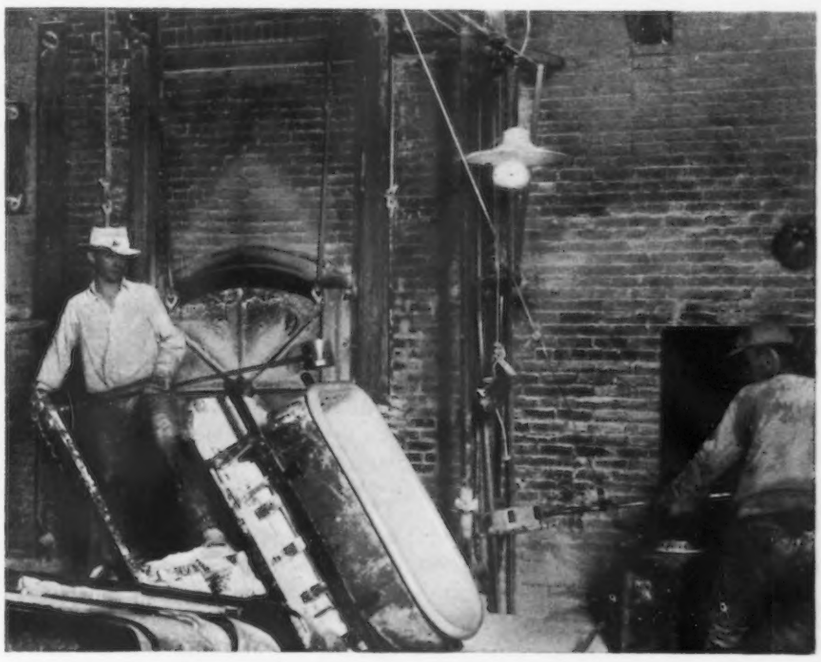
Speaking in the technical sense, enamel literally is a glass fused on metal. Improved production processes



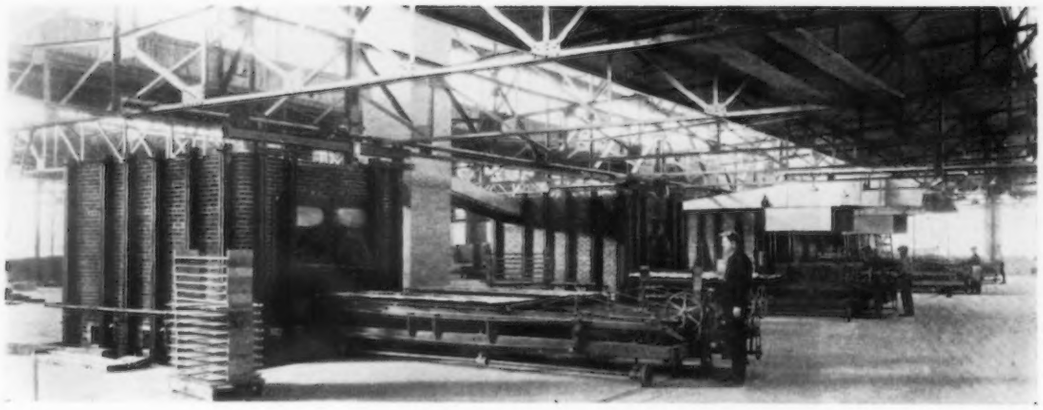
Applying to bathtub unit the slush coat, which dries white

and materials have gone far to bring about successful accomplishments in different lines of porcelain enameling in recent years. The knowledge of the modern enamel chemist would have had little value, if not almost impossible of initial development, had it not been for the advances made in the manufacture of suitable base metals, the phenomenal improvement in casting technique, more efficient methods of handling heavy castings, and the notable developments in steel-drawing practice. These are a few highlights.

Among the most essential contributions to the industry is that of the iron and steel mills in providing the enamel plant with high-grade, uniform material for the production of desired shapes and ware at a commensurate price. This is particularly so in the case of steel sheets, for in the early days of enameling it was virtually impossible to secure the special enameling stock of right character, sufficiently uniform and reliable in composition to insure successful, continuous service in commercial manu-



Powdered enamel is dusted on red hot ware in the dry process.



Battery of porcelain enamel furnaces showing speed forks for handling ware.

facture. Through the active participation and cooperation of the research organizations of different leading steel companies, several types of enameling sheets are now available on the open market which eliminate such difficulties entirely.

In this, it is worthy of note that the enameling plant makes no slight demand on the quality and inherent character of steel sheet required when it must withstand adequately the strain of drawing 15 to 25 in. or more in depth for different types of ware, such as washing machine tubs, and then retain its desired shape during the succeeding operations of stamping, enameling and cooling. Today such material is available and at surprisingly low cost. At the same time, the advances made in steel-drawing methods have made possible the production of intricate and complicated parts and special shapes, presenting ever-widening possibilities for the enameling plant.

Developments and improvements in welding, sand-blasting and pickling have been of important concern to the enameling industry. The preparation of clean, smooth sheets so necessary for successful enameling practice has been perfected to the point of almost routine order. Likewise with the fabrication of complex parts and pieces, which now readily can be produced efficiently and at a speed demanded by modern manufacture.

That the evolution and development of large-scale operations in the enameling industry have been dependent upon an adequate and thorough understanding of iron and steel production, metal-making and handling is shown clearly by brief reference to the progress and growth of the sanitary ware industry.

Last November signalized the 91st anniversary of the introduction of the modern bath tub in this country, and it is interesting to note that this fixture, actually, is modern only to America. The initial development was slow; 20 or 30 years later the only bath tubs known were cumbersome and crude affairs, constructed of wood framing and lined with copper, lead or zinc. It was not until 1870 that cast iron tubs were believed practical, and in that year a company known as Barrows, Savery & Co. began the production of such units at the rate of one per day—on good days. These tubs were finished with a crude coat of white enamel.

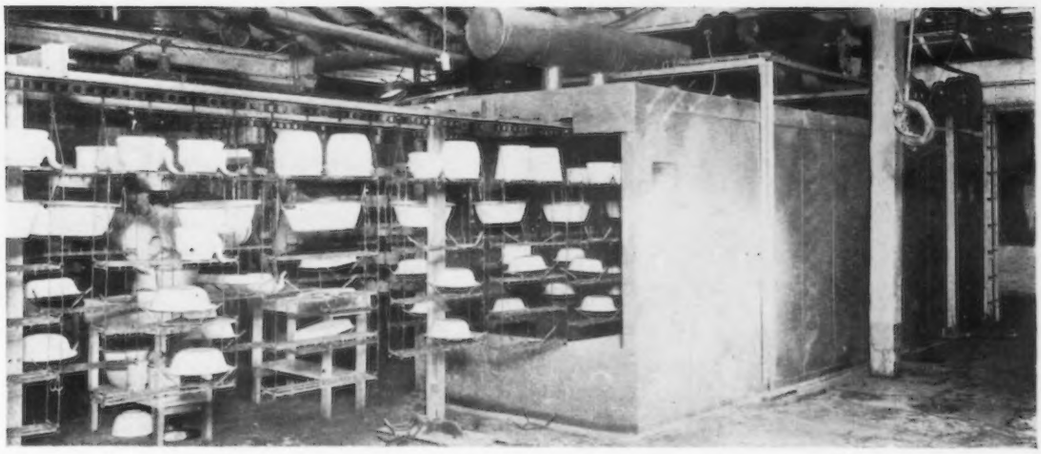
A few years later, about 1874, the J. L. Mott Iron Works entered this line of manufacture, and were really the first successful producers of enameled iron tubs. The output was developed to four and five such units per day, the casting being done in shell patterns by crude hand-molding methods, with production losses running high. The castings were cleaned by means of wire brushes and files, and following, were acid-pickled and given a brush coat of enamel. As can be imagined, these castings were extremely clumsy and difficult to handle, each weighing 450 to 500 lb. Although several coats of enamel were applied, the layer was rather thin and none too durable. A wooden rim around the top of the unit completed the job.

The first real improvement in manufacturing methods came as a result of investigations of the Standard Sanitary Mfg. Co., Pittsburgh, about 1882 (now a division of the American Radiator & Standard Sanitary Corpn.). This company developed the so-called dry process, in which the hot tub castings were dusted with enamel in the form of a dry, pulverized powder. This made for a much cleaner and brighter surface, with less imperfections. The application of the enamel, however, was still one of hand labor, and the maximum output of a furnace was about one bath tub per day. It was not until the beginning of the present century, or about 1900, that mechanically operated sieves were developed and perfected for dusting the dry enamel on the iron surface. The introduction of this method reduced the time for applying the enamel approximately 50 per cent, thus doubling the output per furnace.

Up to this time but slight fundamental advancement had been made in casting and handling technique. Closely following, however, a mechanical molding process was perfected and this proved of decided advantage to the sanitary ware industry. Production was speeded considerably. Interior and exterior patterns, produced mechanically and superimposed in the casting position by means of overhead cranes, made possible marked reduction in time required for casting preparations. Again, the mechanical process allowed the casting of more complicated designs, a feature that was utilized to advantage in ware design for sanitary service.

Still another improvement was found in the reduction of the thickness of metal secured through mechanical mold-making and this, likewise, brought about worth-while economies. Castings for sanitary ware are now being produced of less than one-half the weight of those of former





Ware on continuous conveyor entering furnace of United States Stamping & Enameling Co.

times, representing marked savings in material, handling costs, freight charges and ultimate installation expense on the job.

The increased production schedules made possible by the mechanical process developed a definite need for sanitary ware plants to adopt adequate modern methods of handling the molten metal and again they drew from the experience of foundries and metal-working plants for desirable practice. Broader and more intimate metallurgical knowledge led to notable improvements in the quality and uniformity of castings.

Automatic sand-blasting proved another important development for sanitary ware production, as many enameling difficulties can be traced to a poorly prepared metal surface. Better pickling methods, likewise, have assisted considerably in the latter direction in connection with the production of enameled steel ware or parts. Some of the recent highly satisfactory accomplishments in this line can be attributed to the careful attention given to pickling and the best equipment for this service. It is unquestionably a major factor for ultimate satisfactory appearance and wear. Continuous pickling, to which intimate study is now being directed in the steel industry, will likely prove another step forward in the enameling field, when such process is fully perfected for commercial utility and initial cost items adjusted on a more economical basis than at present.



On the subject of the preparation of enameling stock, an interesting reference was made in a recent issue of THE IRON AGE (Sept. 28, 1933, page 30), explaining the use of controlled-atmosphere furnaces for this purpose and indicating decided departure from present practice. In this it was pointed out that some experiments have been made in furnace units of this type, taking the raw material as it comes from the presses or welders and passing it through the furnace. The enameling is handled later, of course, but without pickling, sand-blasting or other cleaning. The use of such a normalizing operation after forming is more economical than pickling, it is stated. The experiments to date, including the actual enameling of stove parts, referred to in the article, show that it is possible to develop a surface by this means that will retain the enamel coats satisfactorily.

Again, modern refractories and specialized enameling furnaces have taken active part in the progress of the industry, making possible closer control, more uniform and higher quality ware at lower cost. Furnace design and operation, particularly, both for box-type and continuous units, have assisted greatly in modernizing enameling processes for mass production of ware on a commercial and competitive basis. As a result, output per man-hour has been increased far in excess of earlier-day calculations.

The development of the modern bath tub, to refer again to this sanitary fixture, is shown pictorially in accompanying illustrations. Dating back to the days of the old boxed-in tub unit, with period references leading up to 1934, this span of years indicates some interesting phases of progress. It is only a few weeks ago that the latest conception in bath tub design, of decidedly contrasting character, appeared on the market. Literally, this is a square unit, with tub section running diagonally. It is a product, tradenamed Neo-Angle, of the Standard Sanitary Mfg. Co., a division of the American Radiator & Standard Sanitary Corpn.

Trend in modern design is illustrated effectively in the new unit—a combination bath tub, shower bath, seat bath and child bath all in one. As will be noted, it provides two commodious seats as integral parts of the fixture, one at the front and one at the rear. In every position, the water controls are in easy reach. A comparison of measurements with the conventional type of tub is interesting. The latter usually with recess of 5½ ft., measures 65 in. long, 30 in. front to back, and 18 in. high. The new unit has a width of 48 in., is 49½ in. front to back, and 16 in. high.

To show the potential market for bath tubs, a late survey (April, 1934) of the Department of Commerce is distinctly pertinent. It indicates the possibilities in the months ahead for the cast iron enameled fixture, with the enameled steel bath tub looming up as a most likely early future product in this line. The report encompasses a total of 54,300 homes picked at random in eight cities, and sets forth that nearly one-half of these, or say 25,000 residences, have no bath tubs or showers, while a third, or approximately 17,000 homes, have no indoor toilets. On this basis, current estimates give a startling total of 40,000,000 American inhabitants without bath tubs today. Certainly this represents a sales outlet of no mean proportions to this line of industry.

(To Be Continued)

Labor on the



William Collins, personal representative at Detroit of President Green, is generalissimo of the A. F. of L. forces in their drive to unionize the automobile industry.

HIGH wages and favorable working conditions in the automobile industry gave the American Federation of Labor little opportunity to organize workers at Detroit until it was bulwarked by section 7-a of NRA. The accompanying article describes the situation in southern Michigan at the time the Federation started its organizing campaign last year and the attempt to create a class consciousness hereto-

ALMOST a year has passed since Section 7-a of the National Industrial Recovery Act became part of the law of the land and thereby opened the way for the most intensive unionization drive in the history of the United States. For years union leaders had looked with hungry eyes upon the automobile industry which always had resisted their advances; it wasn't until they were bulwarked by the NRA that they had their big chance at Detroit.

So much has been written about the automotive labor situation, mostly about individual incidents and events, that a dispassionate review of what has happened seems appropriate. What of the success of the American Federation of Labor in the automotive area? How are so-called company unions functioning? Has the Automobile Labor Board, established by President Roosevelt to handle the matter of collective bargaining machinery, justified the hopes at first reposed in it? What changes, if any, have been made by motor car companies in working conditions, wage payment systems and in attempted stabilization of employment? What is the worker really thinking?

The automobile industry traditionally has maintained an open-shop labor policy and has been remarkably free from strikes and other disturbances. In fact, the recent threat of a national automobile strike by the American Federation of Labor was unprecedented in motor car circles. This freedom from labor truble in past years is all the more surprising in that the industry is concentrated in a small area centering at Detroit, where the compact grouping of several hundred thousand workers would seem to maek the organization of union activities relatively easy.

The explanation is found in high wages and favorable working conditions. It is scarcely necessary to point out that Henry Ford pioneered in the eight-hour day and the five-dollar-a-day minimum wage long before any other manufacturer seriously thought of such standards. The industry generally paid such high rates that men were attracted to the Detroit district from other parts of the country.

Factories usually were of modern design. The industry never has been backward about adopting safety devices and other measures to guard the health of workers. Child labor never has existed. Judged by conditions common to most American industries, motor car makers have had a clean bill of health.

Depression Hit Detroit

Yet no one would be so rash as to claim that automobile workers were ideally situated during the depression or did not nurse justifiable grievances. Incomes shrank distressingly and wages rates were lowered as the economic stress of the times forced curtailment of expenditures. Even so, it is a matter of record that the Detroit municipal welfare department had a standing request from prominent motor car companies to send them any of their employees who asked for help. They made it their duty to look after employees who had been unavoidably laid off. No industry went further in spreading work, one prominent manufacturer having so distributed its activities that at the bottom of the depression its employees were working an average of 100 hours a month. Conditions had grown up in individual plants which needed correction. Group pay rates, in some cases, had got out of line with those in other groups, largely because attention had not been drawn to them rather than because of management's refusal to change them. That is, changes in processes of manufacture or in equipment had occurred without the method of paying the group on that job having been modernized at the same time.

In some factories the policy had grown up of having men report for work in the morning and then send-

Automotive Front



Spokesman for General Motors Corpn., William S. Kundsen, executive vice-president, declares "our duties to our working people are threefold: that we pay a fair and adequate wage; that we supply modern equipment; and that we look after the health and safety of our men while they are in the plant."

ing them home after an hour's wait without any compensation for their time. In general, grievances were mostly of a minor nature, but had assumed exaggerated importance because nothing had been done about them. In this connection it should be remembered that the cumulative effect of minor irritations often is as bad as that of one major grievance.

At this point perhaps the greatest factor contributing to strife thrust itself on the scene—a lack of understanding between management and workers in several large corporations. The president of a small company frequently knows the machine operator in his shop better than the works manager of a large plant knows his employees. The larger a company is, the farther removed is the management from the workers and the less it is in touch with the latter's point of view.

fore absent. The article likewise describes the employee representation plans set up by General Motors and Chrysler and enumerates some of the accomplishments of so-called company unions in the motor car industry. A second article in a forthcoming issue will give an appraisal of the work of the Automobile Labor Board and will discuss other problems directly pertaining to the automobile labor situation.

Absence of Personal Contacts

Absence of personal contacts between the manager and the managed created a bugaboo in automotive circles. Workers believed high executives had no appreciation of their personal problems and moreover weren't interested in finding out about them. The individual worker was just a machine to be operated for management's profit.

Management, on the other hand, acquired the feeling that some of its men were long-haired radicals aiming at destruction of the American system. They were seeking what didn't belong to them and the thing to do was to put them in their place.

A misunderstanding of each other's motives thus existed when the Roosevelt administration came into control of the government. It provided fertile ground for union organizers to step in and plant seeds of discord when the National Recovery Act gave the American Federation of Labor a new lease on life.

After the National Recovery Act had been assured of passage, but before its final enactment, the Federation called its first meeting of automobile workers in Detroit. It was scheduled for June 19, 1933. In the light of subsequent events, an examination of its hand-bill advertising the meeting is of more than passing interest.

The hand-bill declared that "for years the workers in the automobile industry have waited for the American Federation of Labor to organize them. For years the Federation has waited for a favorable opportunity. This is your chance to form a labor union under the manner of the Federation to deal with the employers over your conditions of employment."

If the Federation was genuinely concerned with the interests of automobile workers instead of with its own aggrandizement, why did it wait to go to the rescue of the down-trodden at Detroit until after the worst of the depression had passed and until after the motor car industry already had granted increases of 20 per cent in wages? Where was the Federation, the champion of labor, during the Briggs strike which occurred at one of the darkest hours of the depression?

The hand-bill told automobile workers to be prepared to present their demands "for decent working conditions." It said that "through trick methods of pay, including the bonus system, piece-work system, gang system, etc., the workers have been deceived as to their actual earnings." Yet when the Federation threatened a general automobile strike in March of this year its principal spokesmen at Detroit, William Collins, admitted that the sole issue was recognition of the union.

Fortified by Section 7-a of the National Recovery Act making collective bargaining mandatory, the A. F. of L. thus began in June, 1933, an intensive drive to unionize the automobile industry. Mr. Collins was the generalissimo of this campaign, which

(Continued on Page 84)

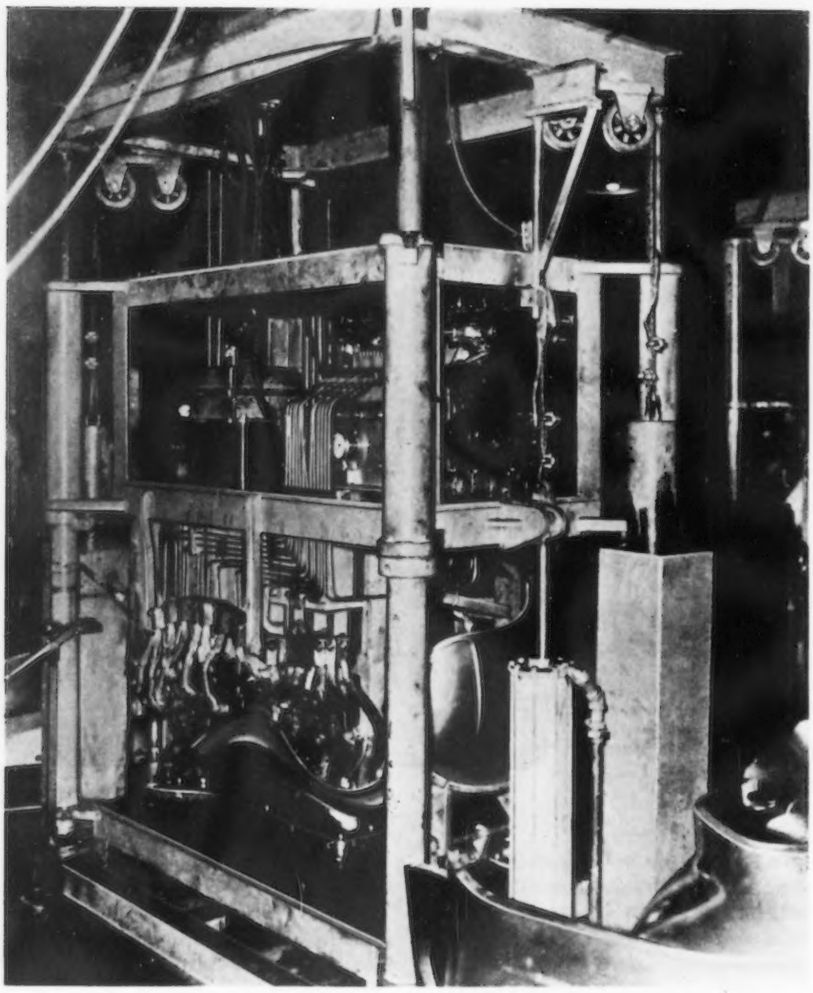
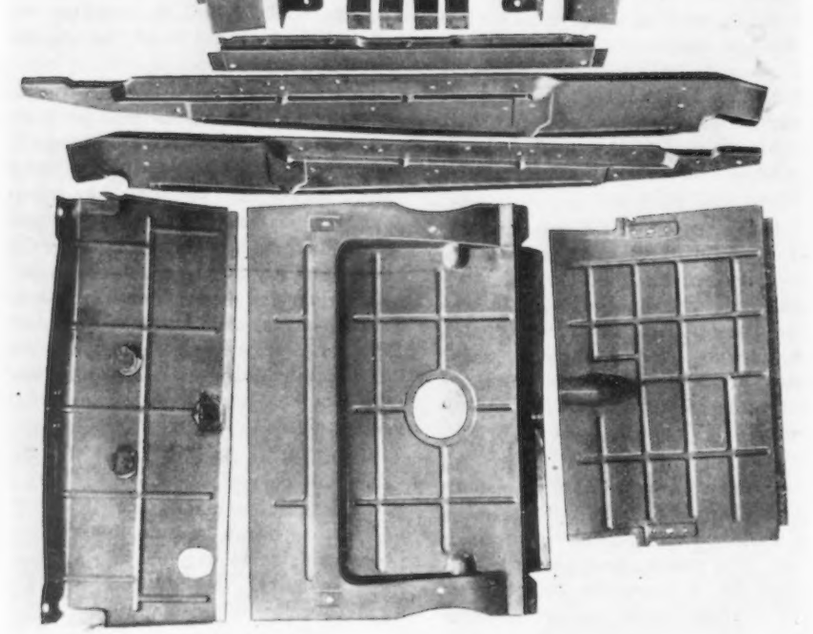


Fig. 1 (Above)—Hydromatic welding machine for welding reenforcement strips to front fenders, with a total of 70 spots. Production amounts to 120 fenders an hour. Fig. 2 (Below)—The 20 underbody parts shown here are clamped into the jigs and welded at one time.



Dodge Uses In Making

By H. W. ROTH

IN the production of all-steel bodies as well as in the manufacture of a variety of sheet metal parts used in motor car construction, welding is becoming more and more indispensable. Especially during the past few years, welding methods and appliances have been improved by leaps and bounds, with the result that the latest practices are as far ahead of their forerunners as present-day motor transportation is in advance of the horse-and-buggy era.

Dodge Brothers Corpn., division of Chrysler Corpn., was one of the pioneers in the design and construction of all-steel automobile bodies. Due to the company's earlier experiences, it has become a leader in the application of welding processes. In the production of Dodge 1934 models, this development culminates in the perfection of a number of special multi-hydromatic machines for the welding of steel passenger car bodies.

Control for Welding Guns

These machines do their work with uncanny accuracy and speed. A multiplicity of hydro-electric welding guns are mounted, in pre-determined positions, in welding fixtures. The guns are connected to a common bus-bar (secondary welding circuits) as well as to a common source of oil pressure. A highly efficient control mechanism automatically operates the welding guns in sequence, in rapid succession. Every weld is applied in the precise spot, for the proper time, with the proper amount of current. No matter how involved or complicated may

Hydromatic Welders All-Steel Bodies

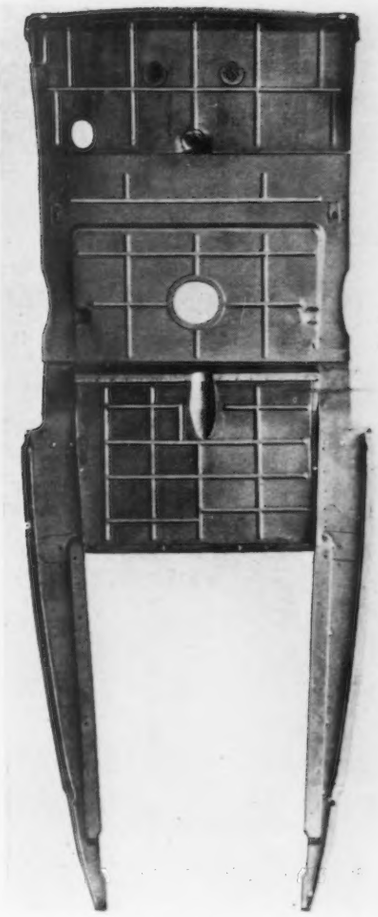


Fig. 3 — The underbody, after the 20 parts have been welded together.

HYDROMATIC welding is gaining ground rapidly in automobile production because it turns out better work of higher uniformity than previously tried methods. It makes the operator's work less severe and results in faster, more flexible production. It saves floor space and contributes materially to safety. It is proving so successful in Dodge Brothers Corpn. that its use is being extended to other divisions of Chrysler Corpn.

be the shape of panels to be welded, the small welding guns contact the work in the right position—vertically, horizontally, or at any angle.

Welding the Panels

In welding, the steel panels, whatever may be their form or number, are placed in the fixture. The operator then opens the main hydraulic valve, whereupon the fixture does the welding automatically. With the panels clamped in proper position, the welding guns start to work with a speed of, let us say, two to five welds per second. When the welds are completed—they may vary in number from 50 to 200, according to the job—the fixture opens automatically and the operator unloads the machine.

One Weld at a Time

Since only one weld is made at one time, a comparatively small transformer is sufficient. For large jobs, several groups of welding guns may be mounted in the same fixture, each of the groups having its own transformer and its own hydromatic valve control unit. Automatic timing adjustment is provided, to take care of variations in the thickness of the sheet metal pieces in different jobs.

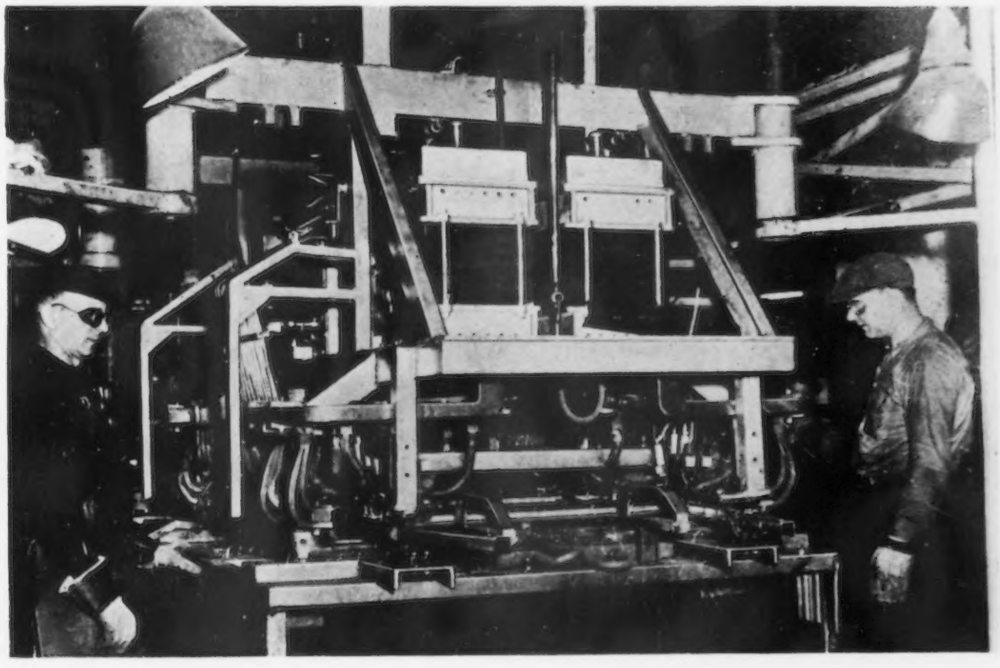


Fig. 4 — Hydromatic welder in which the underbody is welded.

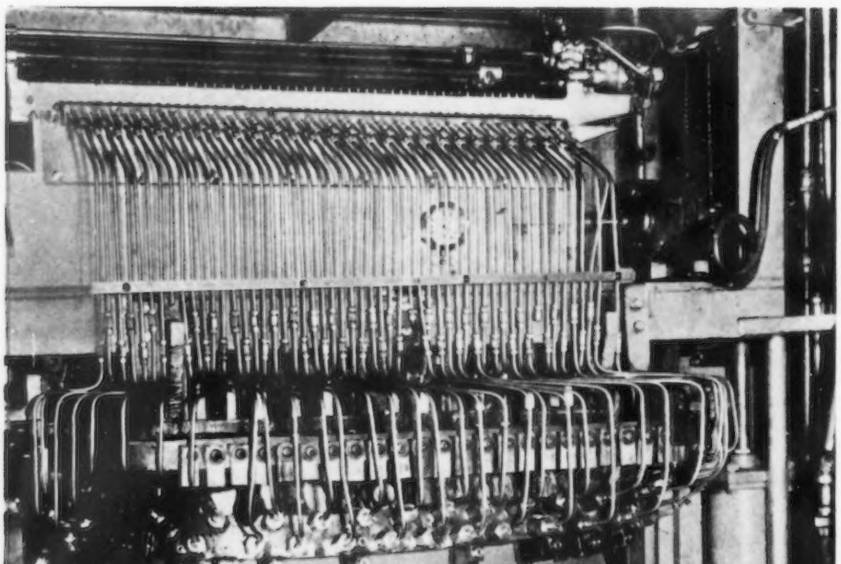


Fig. 5—One hundred sixty spots are welded in 45 seconds in this huge hydromatic cowl welder.

Fig. 1 shows a hydromatic welding machine used for welding reenforcement strips to front fenders, with a total of 70 spots. One hundred and twenty fenders are welded per hour. The work is stronger and safer.

The welding of various parts of the underbody of Dodge passenger cars is seen in Fig. 2. The finished weld is illustrated in Fig. 3, while the machine on which the welding is done is pictured in Fig. 4. In this instance, the welder is built immediately over the conveyor, an arrangement making the loading and unloading easier and faster.

Welding Cowl Parts

Another interesting application of hydromatic welding is shown in the picture of a cowl welder, Fig. 5, which welds a total of 160 spots in the short time of 45 seconds. The component parts of the cowl are displayed in Fig. 6 and the finished piece in Fig. 7. The machine is shown in closed position (Fig. 8) ready to weld. After the welding is completed, the carriage on the right of the machine slides upward and the horizontal truck at the left side moves backward, to clear the work for unloading. Here, as in the operations described previously, the work is done with a precision unattainable by previously-used methods. A noteworthy point is the fact that all the fixtures of these hydromatic welding machines are constructed of steel, which is arc-welded together.

A simpler, yet just as effective, hydromatic welder is illustrated in Fig. 9. It is used in welding reenforcement strips to rear-seat panels, a total of 30 spots being necessary. Here, too, the gain in accuracy and uniformity is considerable.

Possibilities of Application

The examples cited are sufficient to demonstrate that the multi-hydromatic method is an important forward step in automotive welding. Its greatest virtue is that of producing better

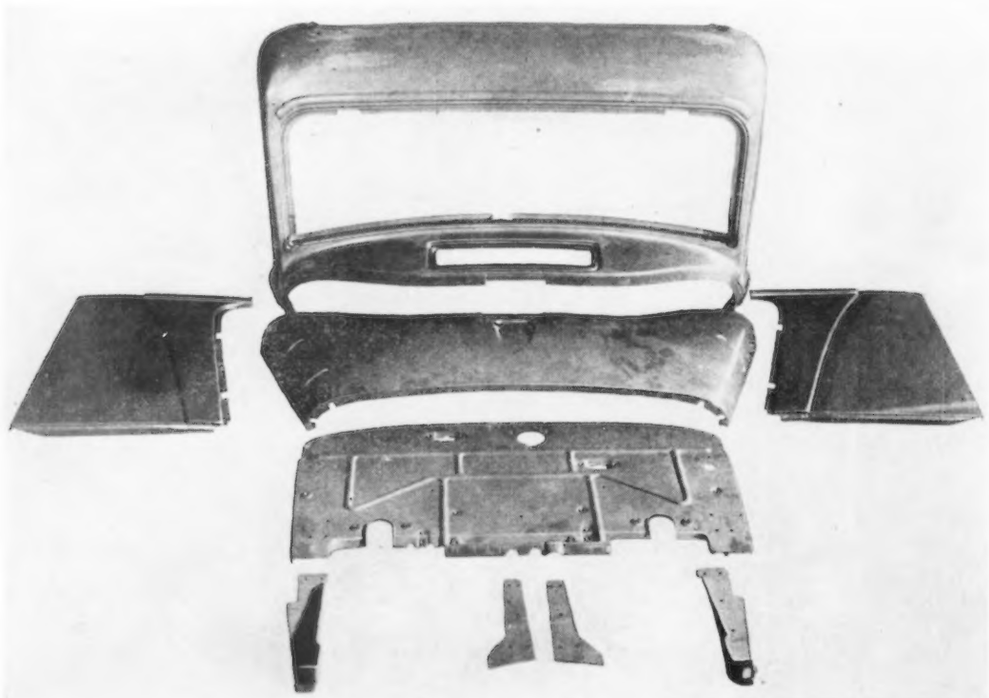


Fig. 6—The nine parts making up the Dodge cowl shown before welding.



work of higher uniformity. It also renders the operator's work less severe in that it puts less strain on him than the old method. It results in faster, more flexible production. It saves floor space in the plant and contributes materially to safety.

The possibilities for the application of multi-hydromatic welding in the automotive field are broad. On smaller jobs, hydromatic welding is likely to replace projection welding. On larger jobs, it may be substituted for portable fixture welders. Under certain conditions, it may supplant flash welding.

Evolution of Welding

It is interesting in this connection to observe the evolution of welding processes employed in the automobile industry. Resistance welding is almost universally used in the production of all-steel bodies. Flash welding and spot welding are the most important methods of body welding. While flash welding has its special applications where a smooth and invisible joint is required, spot welding is more generally utilized because it is simpler and can be employed wherever a lapped joint is possible.

Stationary spot welders were the first machines adapted to body welding. The foot-operated types were soon replaced by motor-driven automatic machines and later by air-operated machines, to increase production and make the individual weld less dependent on the skill of the worker.

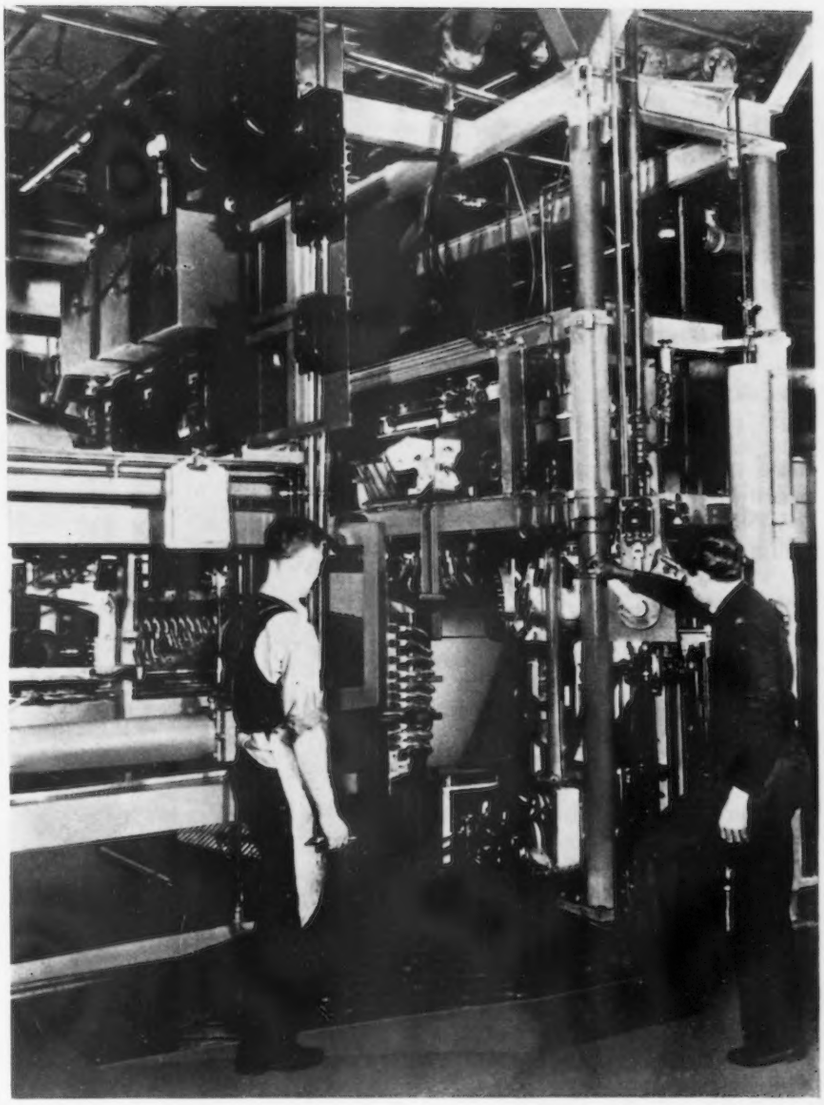


Fig. 8 — Cowl and windshield sections are welded in this machine with a precision never before attained.

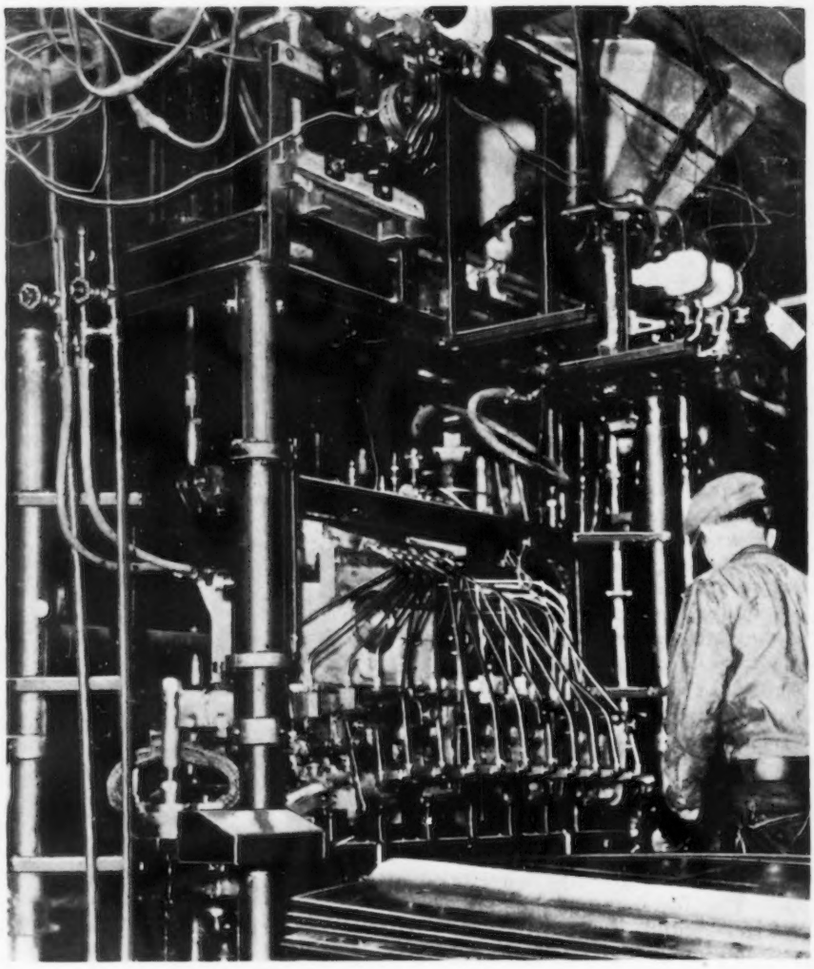


Fig. 7—The finished cowl. The nine parts are placed in jigs in less than one minute. The welding time is 45 seconds.

As body stampings increased in size, it became more difficult to handle the sheet metal on stationary welders of standard design. Welding fixtures were developed to clamp the stampings to be welded in the right position and to complete the weld either by means of bar welders or portable welders, consisting of a suspended transformer and a hand or air-operated welding tool connected to the transformer by water-cooled, flexible cables.

The latter method is far from satistactory because the operating rate of fixture and portable welders varies with different operators. The exact location of each spot weld, and in many cases the quality of the weld itself, is subject to variations in the attention or skill of the operator. Portable welders are heavy to handle and the operator is apt to become tired after several hours of work. Moreover, when body parts are com-

Fig. 9—A simpler, older type of hydromatic welder is used in welding reenforcement strips to rear seat panels. Thirty spots are necessary; the welding time is 17 seconds.



plicated, it is more difficult to move the portable welding gun from spot to spot and maintain production.

In some cases, where a number of spot welds are required on a sheet-metal part, the so-called projection weld has been used. This method makes it possible to perform several spot welds in a welding press, using embossments or projections where a spot weld has to be put. However, this process has its disadvantages in that it imposes a heavy load on the power supply and in that the number of spots that can be welded in this manner is limited.

Dodge Brothers Corpn. adopted the new method of multi-hydromatic welding because it overcomes the handicaps of various types of equipment employed heretofore. The multi-hydromatic welding process has already proved so effective and economical that it has been extended into other divisions of the Chrysler manufacturing organization.

French Book on Drawing Steel Wire

A NOTABLE book on Drawing Steel Wire (Le Trefilage de l'Acier) has appeared under the authorship of Maurice Bonzel, of the Bohin Works, France. In fact the reviewer cannot go wrong in referring to this book as unique. Books on wire drawing can be counted on the fingers of one hand, and each author treats the subject from a different angle. M. Bonzel seems particularly desirous of finding scientific explanations for all wire mill mysteries, sound working theories which tie in with each other and with current scientific thought, and he seems to the reviewer to have been amazingly successful. Practical matters are by no means neglected, but the author's interest is as fully engaged in "why" as in "how."

The treatise opens with a discussion of the three raw materials available in Europe, Thomas (basic converter), Martin (basic open hearth), and electric steel. Rolling defects are discussed, and rules set up for inspection and grading of rods. A brief but adequate chapter describes drawing equipment. In 60 pages devoted to dies the author begins his excursion into theory. The present reviewer cannot indorse M. Bonzel in this matter, but will admit that the chapter is an adequate presentation of theories widely held respecting die stresses.

No less than 80 pages are devoted to die friction and lubrication, friction being treated as a physico-chemical phenomenon. Six groups of lubricants (mineral oils, fats, soaps, brewery waste, meals and minerals) are treated in detail. A particularly valuable section is devoted to mill tests and control methods for plating and lubricating baths.

Forty pages are given to cold work phenomena, and about 250 to heat treatment, including a thorough discussion of ageing, and of low temperature effects. The last 50 pages of this section are of a practical nature, dealing with furnace design, pyrometry, etc. Pickling gets 30 pages, the discussion closing with the quotation of the old wire mill maxim which cannot be repeated too often, "a wire well cleaned is half drawn."

After a 30-page chapter on corrosion from both the theoretical and the practical angles and description of the various protective coverings and methods of applying them, the author goes into shop organization, layout, routing of work, "paper work" of the mill and mill office, methods of payment, cost accounting and the setting of prices.

The "wet" system of wire drawing, a side issue in the English speaking countries except in fine sizes, has always been the chief, practically the sole, method in Europe, and while the northern countries are swinging steadily to the British and American practice, France still regards dry drawn wire as a specialty. While M. Bonzel refers to lime, baking, dry drawing and cast iron dies he seems to speak as an observer only.

The book seems to this inexpert linguist to be well written, in the crisp and precise style to which the French language lends itself so beautifully. The editing is in most respects excellent, with practically complete freedom from misprints. It is rather a relief to find one defect worth reporting.

The book has a total of some 630 pages and 414 illustrations, and is published by Dunod, 96 rue Bonaparte, Paris (6th), France, at 162 fr. ($10.75) bound and 151 fr. ($10) in paper covers.

New Things in Materials and Processes

By EDWIN F. CONE

▼ ▼ ▼

Stainless Steel from the Open-Hearth?

ALTHOUGH a patent is largely "a license to litigate," it often happens that one of these is distinctive in at least indicating certain important trends. Late in 1933 (December), a patent was granted to K. M. Simpson for a "method for making chromium steel." Of course, there have been many such patents, and the issuing of the patent has often been the final chapter.

But in the case of the particular patent referred to, I am led to believe that unusual significance should be attached to it. Briefly, it is a process for making the stainless steels in an open-hearth furnace. Finely divided chrome ore is mixed with equally finely divided ferrosilicon (or some other suitable reducing material), and in a specially constructed open-hearth furnace, this mixture is converted into ferrochromium. Following this, after removal of the slag, scrap steel is charged on top of the ferrochrome and the whole melted down to stainless steels.

It is claimed that success has been attained in a small furnace and that the prospects of further developments are excellent.

It is obvious that, if the present expensive method of making these steels in the electric furnace can be superseded by the open-hearth, the resulting mass production will result in cheaper corrosion and heat-resisting steels and in a larger use of them. Until some such process is developed, stainless steels will continue to be relatively high in cost.

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Developments in Elęctric Melting Furnaces

THE evolution of the electric steel melting furnace in the last 25 years is one of the most important developments in the American iron and steel industry. From small beginnings the use of this type of melting has grown to very large proportions—the American electric steel industry leads the world, judged by any standard.

In the early days there were several types of arc furnaces known by as many different names. There were also some ring induction furnaces, but these were never very successful. Today the latter type is not generally used and there are but two classes of arc furnaces in quite general use. But to the electric shaft furnace for reducing ores and to the electric melting furnace, industry owes our alloy steels.

These remarks lead up to the statement that in quite recent years a new form of electric melting unit has been developed to which industry is greatly indebted. This is the high-frequency coreless induction furnace. It has made possible almost revolutionary results in steel production and its use is expanding rapidly. It has been my fortune to confer with several users of this furnace and I have been surprised at the unanimity of opinion as to the merits and its possibilities and as to the large number employed in the manufacture of special high-grade alloy steels and steel castings.

• • •

Stainless Steel by Powder Metallurgy

THERE have been some references in these comments in the past to powder metallurgy—a development which in time may be of large importance.

My attention has lately been called to a patent, not very recent, which covers the manufacture of stainless steel by powder metallurgy. The claims of the patentee are for a process for making stainless metal composition which comprises intimately admixing finely divided particles of iron, nickel and chromium which have clean surfaces and are of a size sufficiently small to pass through a 200 mesh screen, substantially in the proportion of 74 per cent iron, 8 per cent nickel, and 18 per cent chromium, subjecting the resulting admixture to a pressure of not less than 20,000 lb. per sq. in. and heating the compressed mixture in a non-oxidizing atmosphere to a temperature above 900 deg. C. but not substantially above 1200 deg. C. to form a substantially homogenous product.

A most interesting possibility!

• • •

Alloy Steels and the Streamlined Ships

TODAY there is appearing the streamlined train and the streamlined automobile—why not something of the sort for the trans-Atlantic liner? The last is fishlined, more or less, in the underwater levels but not thoroughly birdlike above the water. Redesigning may at least bring a call for the lighter, strong materials, which means alloy steels. What are commonly known as the simpler or low-alloy steel, low-chromium, or copper-bearing steel of relatively high manganese content, or perhaps the stainless steels, will be a prime necessity in such a development. Already experimental use of certain of these

(Concluded on Page 76)

Choosing the Right Drive—12

By WILLIAM STANIAR
Mechanical Power Transmission Engineer
E. I. DuPont de Nemours & Co.

THE gradual acceleration of a high starting-torque load by the magnetic clutch is not dependent on the human element, since when once the electric current is applied, the gradual functioning of the friction elements is automatic. Therefore, the operation of a clutch of this character should not be confused with the conventional type of mechanical disk friction clutch in which load acceleration to a great extent must be controlled by the operator.

One prominent modern design of magnetic clutch for use between a motor with "across the line" starting either directly connected to the load or connected through a reduction gear is shown assembled by Fig. 72 and disassembled by Fig. 73. Regardless of the fact that this discussion treats chiefly of high starting-torque devices, it is interesting to note that recent developments of the magnetic clutch have made this device suitable for general clutch service such as machine tool control and the distribution of power through line and counter-shafting. Fig. 74 shows a type available for machine tool operation, capable of being mounted integrally with the frame of the machine; while Fig. 75 illustrates the application of the magnetic clutch to a line-shaft pulley. The pulley is as shown mounted on the hub of the clutch armature. Fig. 76 shows another type which is spring actuated and magnetically operated, the magnet being capable of overcoming the spring tension. This type functions efficiently where continuous engagement is essential and also possesses the ability of reducing electric current cost. The small or fractional horsepower capacity magnetic clutch is illustrated by Fig. 77.

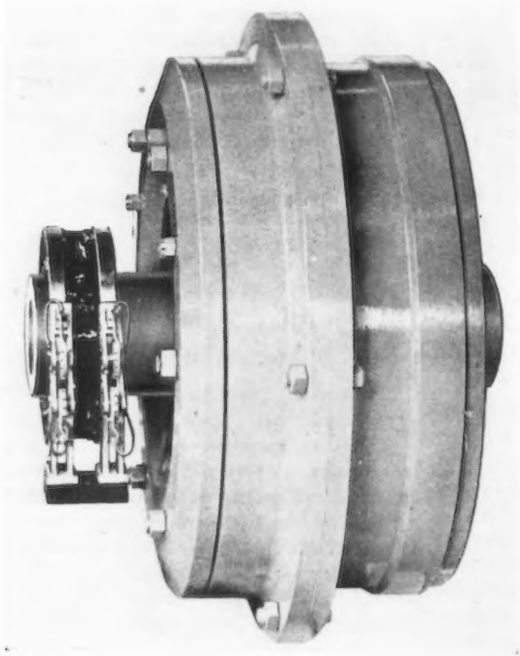
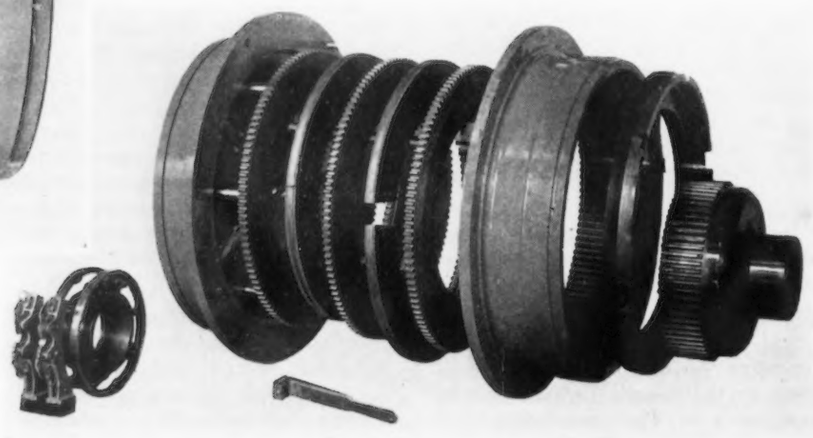


Fig. 72 — Magnetic clutch for use with "across the line" starting.



Fig. 73—(Below): Integral parts of the magnetic clutch shown in Fig. 72.



Positive Braking as Safety Feature

In certain industrial power applications it is necessary to provide positive braking as a safety feature and also positive stopping of the machinery involved should an interruption in the electric circuit occur. The latter feature is particularly desirable in conjunction with the use of the electro magnetic clutch. Various

Magnetic and Mechanical Clutches and Couplings



forms of electro magnetic disk brakes have been used, but design and construction difficulties, reflecting in the performance and reliability of the device, have kept them in the background. It appears that manufacturers generally have not been concerned with eliminating the objectionable features of a device of this character, but have, instead, developed the shoe and band brake for this service.

Magnetic Disk Brake

In view of these difficulties, one manufacturer of electro magnetic clutches has developed an electro magnetic disk brake claimed to possess superior construction and design features over the shoe and band brake. This disk brake as shown for D.C. current by Fig. 78 and for A.C. current by Fig. 79 is virtually identical to the electro-magnetic disk clutch with the exception that the operation is reversed. The clutch is magnetically engaged and mechanically disengaged while the brake is mechanically engaged and magnetically disengaged or in other words the electro magnet brake is spring set, the magnets overcoming the spring pressure when released. The device is simple and practical and operates through torque being developed through solenoid action and multiplied by levers.



Fig. 74—Type of magnetic clutch available for machine tool mounting.

Clutches and Couplings for High Starting-Torque

Mechanical clutches and couplings for high starting-torque service can be segregated into two groups—namely, those that require manual or mechanical actuation and those that are actuated automatically by the action of centrifugal force. The former corresponds in principle to the electro-magnetic device, differing only in the fact that the magnetic clutch depends on electro-motive force while the mechanical clutch requires manual or mechanical power. After initial engagement or disengagement, their respective mechanisms automatically control the gradual acceleration or retardation of the load. The latter group is self-actuating, therefore choice of the mechanical devices depends almost entirely on the service requirement, because one acts strictly as a high starting-torque clutch, while the other serves the dual purpose of a high starting-torque coupling and to a certain extent a flexible connection.

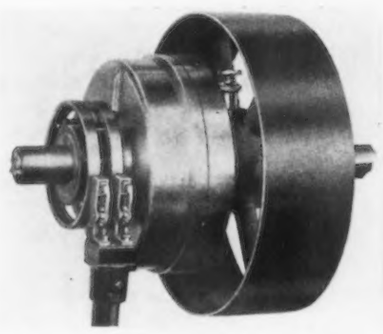


Fig. 75—Magnetic clutch applied to a line-shaft pulley.

A mechanical clutch for high starting-torque duty cannot be associated with the regular type of multiple disk or friction block design generally employed for line-shaft driving to various forms of low starting-torque apparatus, since clutches of this character, while they allow a certain amount of slip, are not capable of gradually accelerating a heavy load when the power is applied at high speed. A clutch subjected to high starting-torque must possess elements that allow an appreciable period of automatic slip before the actual driving surfaces contact; therefore, it is obvious that the utilization of the shear stresses of a liquid film between the driving surfaces of a clutch will result in smooth load acceleration. This principle is incorporated in a recent design of a high starting-torque clutch and coupling for direct connection as shown by Fig. 77 and

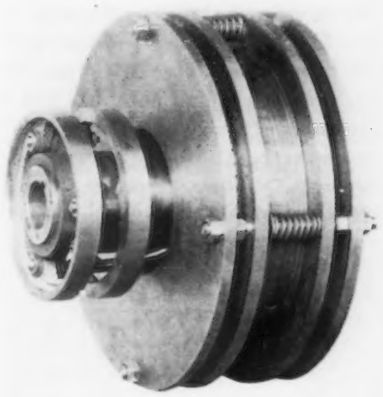


Fig. 76—Another type of magnetic clutch in which spring action is included.



Fig. 77 — A fractional horsepower magnetic clutch.

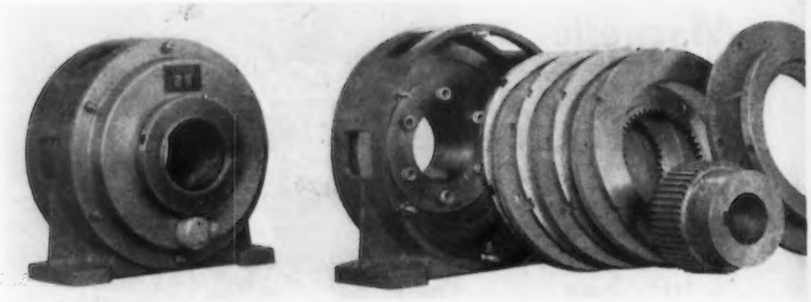


Fig. 78 — Electro-magnetic disk brake for D.C. current.

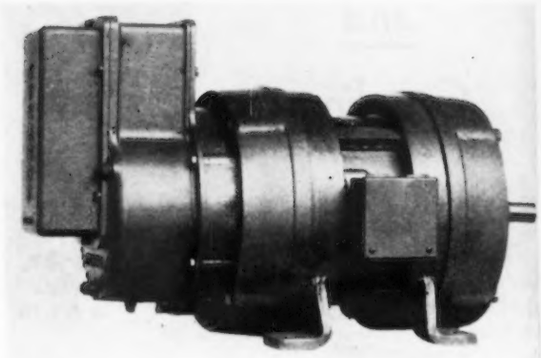


Fig. 79 — Electro-magnetic disk brake for A.C. current.

for line-shaft clutch service as shown by Fig. 80.

Utilizes Shear Stresses in Oil Films

This coupling and clutch which must be actuated either manually or mechanically utilizes the shear stresses in oil films between highly resilient conical friction rings as its slippage medium. This results in smooth starting and acceleration regardless of the torque involved, since when the load is applied slippage occurs between the oil films attached to the metallic rings. As acceleration proceeds, these films are gradually reduced in thickness, therefore increasing the shear stresses until slippage ceases and metal to metal contact is established.

The new and outstanding feature of this device is the co-adjustment or self-alignment of the rings, composing the friction elements, which automatically distributes the pressure uniformly over the entire friction surface. The advantage of this is increased power transmission capacity by virtue of a greater unit pressure being permissible than is ordinarily feasible. This co-adjustment is secured through the use of endless or unbroken, highly resilient conical friction rings, telescoping under wedging action at a mechanical advantage, by means of an axial shifting force, whereby the outer rings are stretched and the inner ones compressed. Being flexible and freely co-adjustable, their friction surfaces conform to each other perfectly, notwithstanding unavoidable manufacturing errors. When the highly flexible friction rings are forced to telescope under wedging action, the result is that all portions of their friction surfaces are immediately brought together through the co-adjusting reactions caused by the accumulating stress-strain or molecular energy. The importance of this feature is obvious, based on the fact that a good lubricant in conjunction with suitable metallic surfaces has great film forming ability. The film formation in this clutch is embodied in and firmly attached to the metallic friction surfaces. During engagement of the clutch they become very thin and of uniform thickness due to the co-adjusting features of the friction elements. Under this condition, they possess great shear strength and capacity to transmit power, and fully protect the friction surfaces against wear. The oil also acts as a coolant of these surfaces and as an absorbent agent for the frictionally generated heat which is subsequently dissipated through radiation and convection.

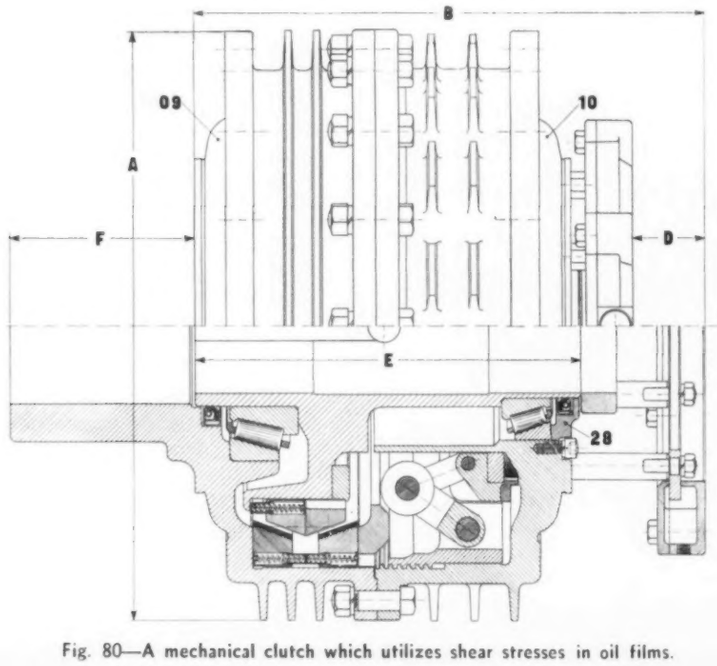


Fig. 80—A mechanical clutch which utilizes shear stresses in oil films.

Highlights of the Industrial Development Of the Soviet Union

WITH what large undeveloped natural resources the Soviet Union started and how much it has accomplished in industrialization was told by Gordon Fox to a joint meeting of the American Society of Mechanical Engineers and the Western Society of Engineers in Chicago. The address is here reported at some length. Although the much discussed but partly misunderstood five-year plan may be considered from the American standpoint as hardly more than mediocre, from the Russian standpoint it was epochal and it opened Russian eyes to a higher standard of living.

By GORDON FOX
Vice-President, Freyn Engineering Co., Chicago

MOST Americans desire to know the facts as to what is happening in the Soviet Union. It seems, however, that many are confused by the multiplicity of seemingly biased, conflicting reports. Many factors contribute to this condition. I will mention but one.

Any comprehensive picture must have perspective. It must have depth. Any true picture of the situation in the Soviet Union must have depth. It must take into consideration the dimension "time." The average tourist and the assigned reporter seem often to get a flat view, to see only that which exists today. We must consider the background of the past century, absolute autocracy imposed upon medieval feudalism; we must consider the degree and type of prewar industrial development; we must consider the calamity of the World War, prosecuted with inefficiency and corruption, a slaughter of the country's best manhood; we must consider the chaos created by the revolution and the civil wars and the terrible loss from famine. We must observe what degree of recovery has been accomplished in the 16 years since the revolution. We must particularly consider the results of the past five years.

With such a perspective we may even risk exterpolating the trend line in an endeavor, in some small degree, to anticipate the future. Figuratively speaking, only the foundations of the Soviet program have yet taken visible form.

The industry of any nation rests upon its natural resources. In general it may be said that the natural resources of the Soviet Union are greater than those of all of the remainder of Europe, but that they are modest as compared with the resources of the United States.

High Grade Ore Reserves Relatively Large

IN heavy industry we are primarily interested in the resources of iron ore and of coal. We will therefore consider these resources somewhat in detail. The principal reserves of iron ore in the Soviet Union, including medium-grade ore and ore possibly difficult of access, are estimated to be approximately as follows:

District	*Location*	*Reserves Tons*	*Predominant Type Ore*	*Iron Content Per Cent*
Krivoirog	Ukraine	1,200,000,000	Red hematite	60-70
Kertsch	Black Sea	2,700,000,000	Brown	30-40
Tula, Lipetsk	So. of Moscow	1,400,000,000	Brown	30-40
Kursk	Central	300,000,000	Red Hematite	55-67
Scattered	No. Urals	700,000,000	Mixed	30-60
Bakal	Central Urals	100,000,000	Brown	45-52
Magnitogorsk	So. Urals	500,000,000	Magnetite	30-60
Orsk-Khalilovo	So. Urals	400,000,000	Brown and red	40
Kuznetsk	Central Siberia	400,000,000	Magnetite	40
Far East, Caucasus and misc.		1,500,000,000	Mixed	35-60
		9,200,000,000		

In addition to these ores, there are in the Kursk and Krivoirog districts vast and rather indefinite quantities of low grade quartzite ore. It should be explained that at the time the construction of the Kuznetsk plant was initiated, the ore reserves in this locality were estimated at 6,000,000 tons. Recent explorations have indicated a much larger reserve, now estimated at 400,000,000 tons. Of the total available ore reserve, it is estimated that about 1,500,000,000 tons is definitely available, of high grade and ready access.

Some authorities estimate the potential iron ore reserves of the world, including low-grade ores, at 125,000,000,000 tons. Of this amount 75,000,000,000 tons are in the United States. However, the high-grade ore

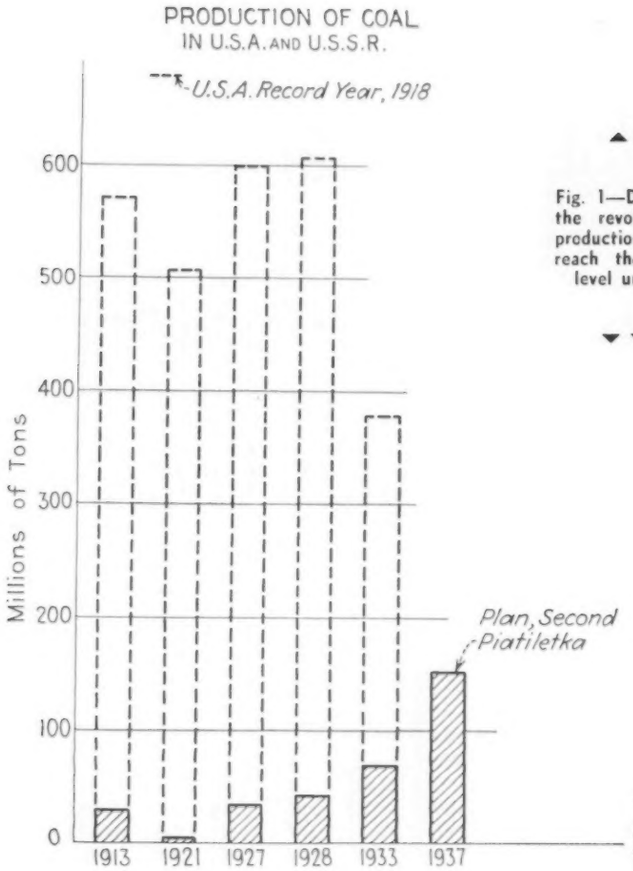


Fig. 1—Disrupted by the revolution, coal production did not reach the pre-war level until 1928.

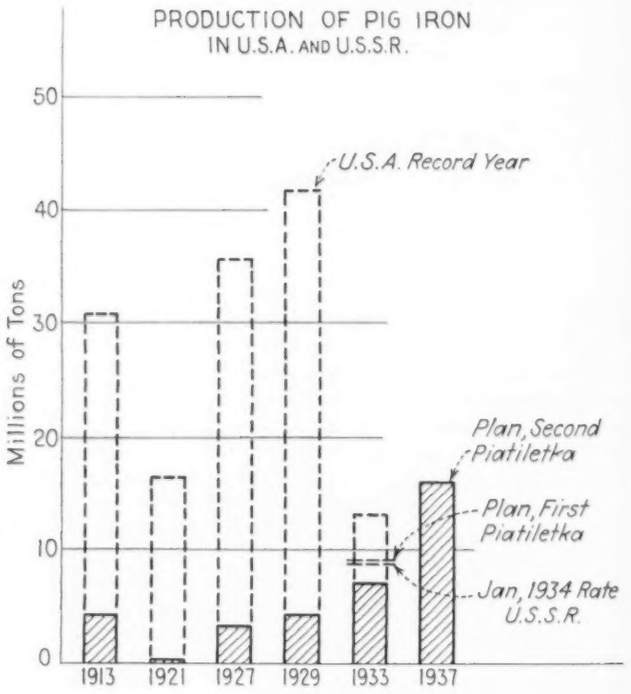


Fig. 2—During the first 5-yr. period pig iron production was expanded 75 per cent but fell short of the program.

commercially available in the United States at present is said to be on the order of 5,000,000,000 tons. Thus we see that the total potential iron ore reserves of the United States probably greatly exceed those of the Soviet Union but, in the matter of higher grade ores, the disparity is less marked.

Coal and Iron Resources Will Serve Domestic Needs

Approximately half of the world's reserve of coal is said to lie within the confines of the United States. About 6 per cent of the world's reserve is to be found in the Soviet Union. About 80 per cent of the Russian coal reserve is located in central Siberia, near Kuznetsk. This coal is located near the surface in thick seams and is easily mined. It is low in sulphur, ash and moisture, high in heat content and may be readily coked. About 16 per cent of the Russian coal reserves is in European Russia, mostly in the Ukraine. This coal generally requires deep mining, it occurs in seams averaging about 1 meter in thickness; much of it is high in sulphur and it is lacking in uniformity. It ranges from anthracite to 40 per cent in volatiles.

While most of the Russian reserve is located in Siberia, about 70 per cent of the coal mining at the present time is in the Ukraine and only about 20 per cent in Siberia. Some coal is mined in the Ural district. In general this coal is akin to our lignite.

In summary it may be said that the bulk of the iron ore reserves of the Soviet Union are located in south European Russia, where there is a limited amount of rather expensive, mediocre metallurgical coal. The principal coal resources are in central Siberia, where there is a limited reserve of iron ore and as yet a limited market. The coal and iron ore resources of the Soviet Union are sufficient to serve as a base for extensive development to meet growing domestic needs. It does not appear that they are such as to form the basis of a heavy industry which can be broadly competitive in world markets unless subsidized.

Oil and Timber Reserves Largest in World

We should at least mention the oil reserves of the Soviet Union, estimated at about 3,000,000,000 tons. These are the largest reserves in the world and comprise about 35 per cent of the world's total reserve. The timber reserves of the Soviet Union are also the world's largest and comprise about 25 per cent of the world's total reserves. The location of the timber in the northern section of the country upon rivers flowing northward renders this timber difficult of exploitation.

European Russia is blessed with a number of rivers which can be utilized and which are being developed for navigation purposes. In general these rivers are similar to our Mississippi River. They can be developed for water power only at relatively high costs.

In summary it may be said that the Soviet Union, because of its vast expanse of area, is moderately blessed with resources. These resources are often unfortunate as to their location, they are difficult to utilize and in general are handicapped for exploitation for export.

Aside from natural resources, the Soviet Union has a distinctive characteristic which will have a marked bearing upon its industrial develop-

ment, namely, a large potential market. In this respect it is similar to the United States. It contrasts strikingly with most European nations which have limited domestic markets and which are greatly confined by tariff barriers. It is in part this characteristic of the Soviet Union which is causing its industrial development to follow American lines.

As a further premise of our discussion we should mention the fact that, prior to the World War, industry in Imperial Russia was being developed primarily through foreign concessions. Approximately 80 per cent of the mining industry and 90 per cent of manufacturing were so held. Foreign concessionaires supplied foreign personnel for key positions in industrial establishments. Naturally their primary interest was not in the development and maintenance of modern, efficient plants. They were primarily interested in minimum plant expenditures, minimum wages to labor and maximum profits for export. Certainly this was not a promising foundation for industrial development.

Progress in Production

WE may now proceed to consider the progress which is being made in the production of coal, of pig iron and of steel.

Development of coal production is graphically indicated in a general way in Fig. 1. After almost complete disorganization following the revolution, pre-war output was again attained in 1926. At the end of the five-year program the output was more than double pre-war figures. It is proposed to double production again during the second Piatiletka (five-year term). During 1933 fifty new mines were put into production, and it is expected to start production in about 40 additional mines in 1934.

Development of pig iron production is graphically indicated in Fig. 2. From this graph it will be noted that pre-war production was attained in 1929. During the first Piatiletka the industry expanded its production about 80 per cent, but fell materially short of the program. It is proposed approximately to double production during the second Piatiletka.

It will be of interest to compare the 1933 pig iron production of the world's principal producing countries:

United States	13,000,000 tons
U. S. S. R.	7,000,000 tons
France	6,300,000 tons
Germany	5,000,000 tons
England	3,900,000 tons

It will be noted that the Soviet Union is now the world's second largest producer. Its 1933 production was approximately half that of the United States and nearly twice that of England.

In January, 1933, pig iron production in the Soviet Union was averaging about 15,000 tons per day. In January, 1934, its average was about 23,000 tons per day—approximately a 50 per cent increase. In February, 1934, the average daily production exceeded 25,000 tons. There is good reason to believe that by January, 1935, the production will be about 30,000 tons per day. The rate of production in the United States at the present time (February, 1934) is

(Concluded on Page 74)

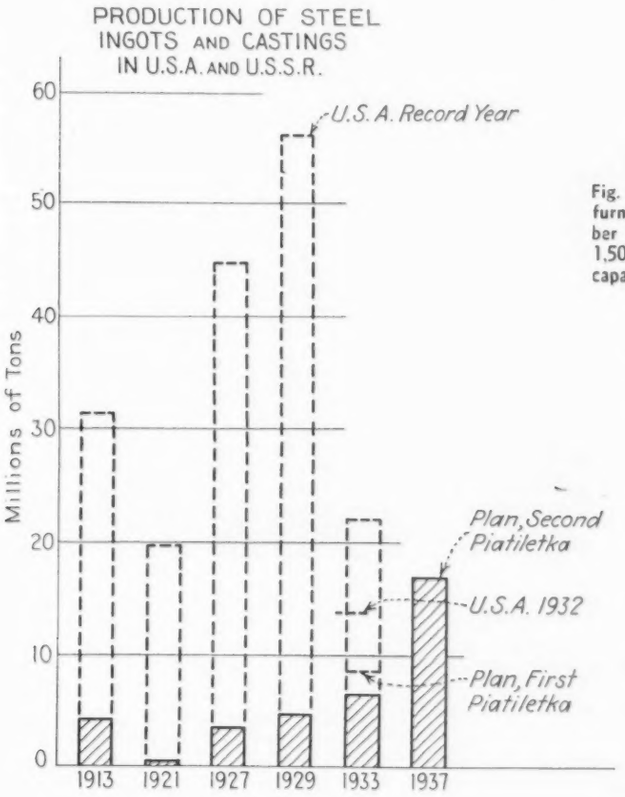


Fig. 3—Open hearth furnaces to the number of 78 and of 1,500,000 tons annual capacity were started in 1933.

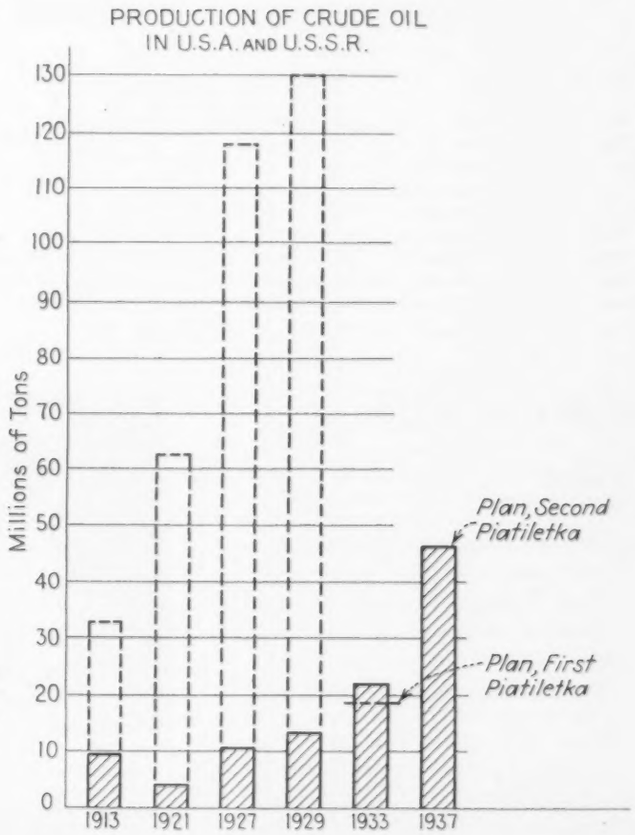
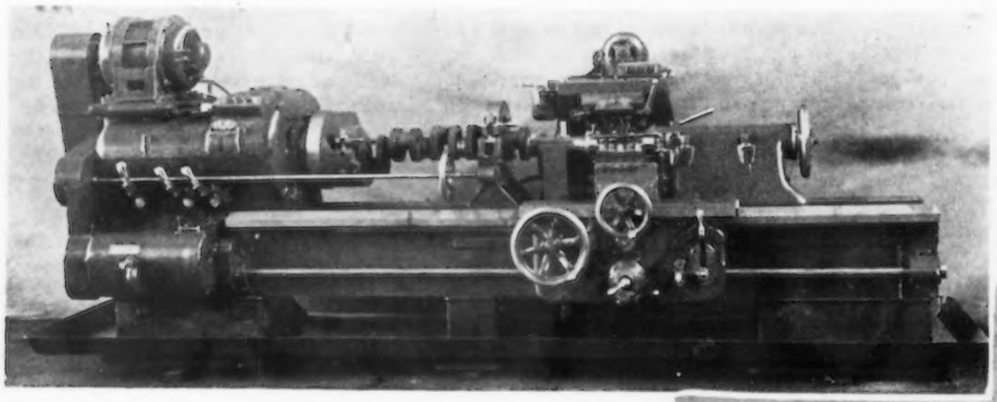
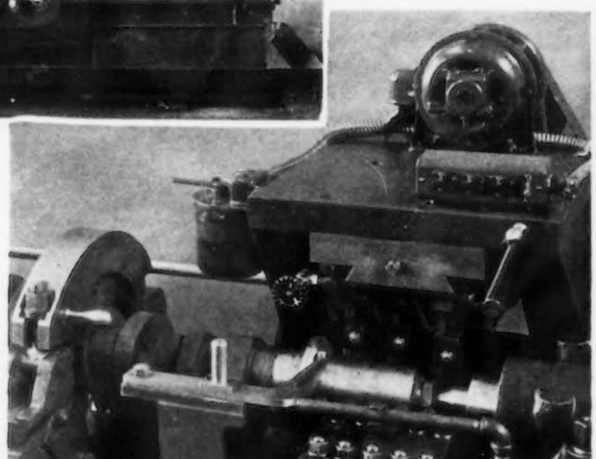


Fig. 4 — Russia now holds second place in world output of oil.



Rear tools of this crankshaft lathe are carried on an inverted slide, as shown in view below, and heavy cuts are taken without chatter.



Crankshaft Lathe with Rear Tools on Inverted Cross-Slide

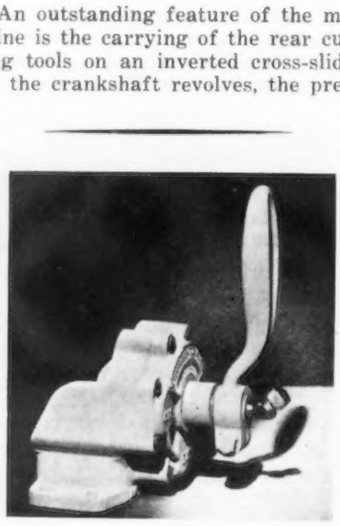
THE accompanying illustrations show a new semi-automatic crankshaft lathe being placed on the market by Wickes Brothers, Saginaw, Mich. It is a 26-in. by 13-ft. machine with a 12-speed headstock, power feed through quick-change gear box, and with motor drive through multiple V-belt. Automatic stops are provided for both front and back tools.

The lathe illustrated is arranged for machining a six-throw, seven-line bearing airplane type crankshaft, the operations being finish turn, finish face and chamfer the flange, and finish turn the long end of the shaft. The crankshaft is 53.3 in. long, overall. The crankpins are 3.2 in. by 2.7 in., and the main bearing is 3.8 in. in diameter. The stroke is 7.5. The Brinell hardness of the material ranges from 319 to 385. The crankshaft is mounted on extensible centers and supported on the center main line bearing in a roller-type steady-rest. The crank is located longitudinally by a dial indicator against the outside face of the flange. Production is at the rate of three crankshafts an hour.

An outstanding feature of the machine is the carrying of the rear cutting tools on an inverted cross-slide. As the crankshaft revolves, the pressure on the front tools is downward and the load therefore is taken up on the front cross-slide. The pressure on the rear tools, however, is upward and the load, therefore, is taken directly against the inverted cross-slide, which, in turn, is carried in the heavy back tool housing. This permits taking extremely heavy cuts without chatter of the tools.

Unitite Manifold Valve

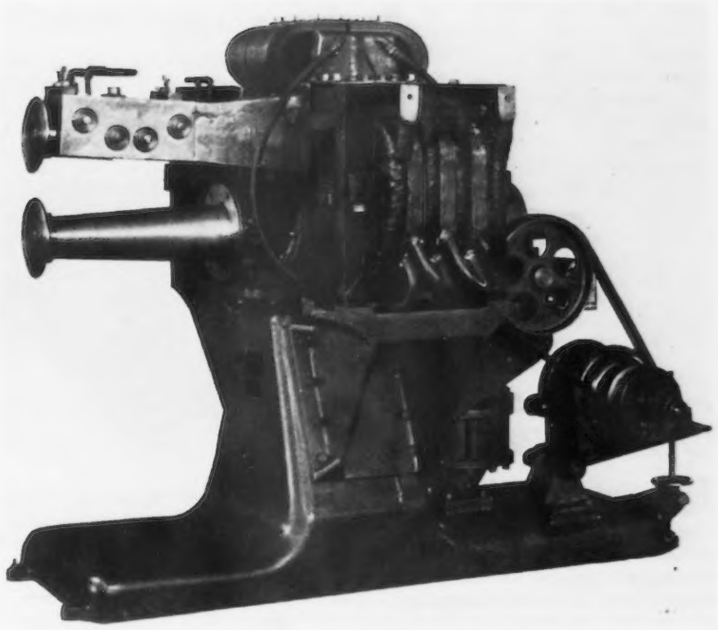
THE manifold valve illustrated, a new product of the Hanna Engineering Works, 1765 Elston Avenue, Chicago, is designed for installation where a number of valves must be located together. The necessary piping to and from the valves is possible without interference with the piping of adjoining valves. Intake and exhaust openings may be connected conveniently to a single supply or exhaust pipe either directly or by means of a manifold or pulpit block.



Valve for installation where a number of valves must be located close together. It is for use with air, oil or water.

Between reversals the valve disk rotates on two eccentric points while in contact with its seat. Circular lines of contact or scoring do not develop. Both the disk and seat wear uniformly across their full diameter. Balanced disk pressure throughout the contact area is obtained by the arrangement of the seat ports and disk pockets. The valve disk is seated on the valve bonnet, and renewals can be made easily and quickly without removing the valve body from the pipe line or disturbing pipe connections or valve mountings.

Seam and Spot Welders for Heat Treated Aluminum Alloys



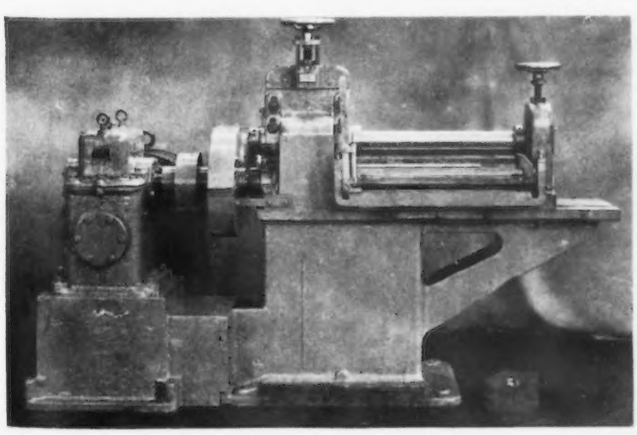
THE resistance welding of heat-treated aluminum alloys used in today's lightweight, high-speed streamlined railroad trains presented a new problem to welding engineers, because it was necessary not only to produce joints having maximum strength but to leave unaffected the properties obtained by the heat treatment. Research showed that to secure successful results several important points had to be carefully observed, and that these points were common to both spot and roll seam welding.

The illustration shows a seam welder developed by the Taylor-Winfield Corpn., Warren, Ohio, for this class of work. Spot welders for use on the same materials are also built by the company. Outstanding characteristics of the machine illustrated include twin-transformer construction that gives uniform distribution of power with minimum reactance and resistance losses. The lower roll is the driven roll, eliminating all unnecessary weight from the upper roll. The latter is carried at the end of an arm made of a special light alloy that provides both maximum strength and electrical conductivity. This upper roll carrying arm is operated by a cushioned air cylinder, giving a very smooth action, and the roll pressure is adjusted and maintained uniformly through a pressure reducing valve. These features are particularly valuable because the slightest hammer-blow effect when the rolls come in contact with the work has a tendency to bed the rolls into the alloy, adversely affecting the welding. By means of an infinitely variable speed drive, welding speeds ranging from 40 to 240 in. per min. are obtainable. The welding heat is controlled in very close steps through an auto-coil with 20-step regulator, and a General Electric Thyratron unit may be used for proper interruption of the welding current.

Gang Slitter with Worm Gear Motor Drive

WORM gear motor drive has been applied to all sizes of standard gang slitting machines made by the Waterbury Farrel Foundry & Machine Co., Waterbury, Conn. As the control is entirely electrical, use of a friction clutch in the drive is eliminated and the construction is simpler and more compact, thereby effecting an appreciable saving in floor space. Reduction in vibration and noise, in the chance of scrap entering the driving parts and in upkeep as compared with friction clutch or spur gear drive are claimed for the new arrangement.

The illustration shows the No. 2 machine. The worm gear unit and motor are mounted on a heavy box-type base-plate that is tongued and grooved and securely bolted to a finished surface on the left-hand side of the slitter pedestal. The motor is flexibly coupled to the worm shaft and the worm wheel shaft is coupled to the lower spindle of the slitter. Of modern design, the worm gear speed reduction units incorporate anti-friction bearings and special provisions for lubrication.



The worm gear motor drive results in simpler and more compact construction. The usual attachments may be used with this new gang slitter.

As applied to this type of machine, the worm unit drive is particularly recommended where direct current is available, because it permits close control by the operator and selection of cutting speeds to suit the particular requirements of various metals, thickness of stock, etc. Alternating-current motors, constant or multi-speed, with push button control, may be used however; these should be of high starting torque type.

The usual gang slitter attachments, such as winders of bracket or floor type, back rolls, coilers, etc., may be used with the worm gear driven machines. But the worm gear drive is not recommended for actuating a rotary scrap cutter, for the reason that a scrap cutter should rotate continu-

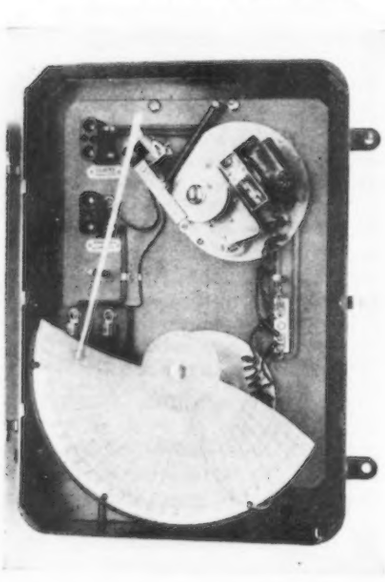
ously regardless of the starting and stopping of the slitter spindles. Individual motor-driven portable rotary scrap cutters, recently developed by the company, are available however. These are of standard two-bearing type mounted on a pedestal with the motor, and may be placed close to the back of the slitter. The usual guides for leading the scrap from the slitter cutters to the scrap cutter rolls are employed. Driven by a small motor through multiple V-belts, these scrap cutters run continuously and at a constant speed.

Spiral-Record Electrical Operation Recorder

THE electrical operation recorder recently brought out by the Bristol Co., Waterbury, Conn., provides a long record on a rapidly moving round chart, but instead of making one circular record it draws a spiral curve starting at the outer edge of the chart and gradually moving toward the center. This spiral record is accomplished by a telechron cam which continuously resets the recorder movement.

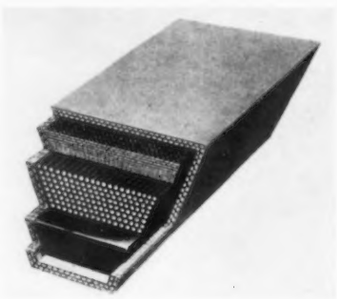
In time study work, this instrument provides an open record with the easy filing and ready reference characteristics of the round chart. One form is fitted with a chart driving clock, making one revolution an hour and with a separate telechron motor driven cam making one revolution in 8 hr. The resulting record is a spiral curve covering eight rotations of the chart and with approximately ¼-in. spacing of the record line.

The mechanism which records the occurrence of an operation is a small electro-magnet which is energized when an external circuit is closed. Movement of this magnet actuates the pen arm and moves the inking pen approximately 1/16 in. The instrument is housed in a moisture-proof case.



Improved Multi-V Belt

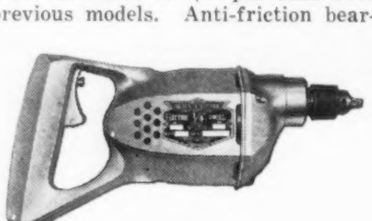
PRESERVATION of balance is a feature of a new multi-V belt construction announced by the B. F. Goodrich Rubber Co., Akron, Ohio.



The three layers are balanced to resist stretch and cover wear; and the belts are compounded to reduce internal heat to a minimum.

Electric Drill of Streamline Design

THE Black & Decker Mfg. Co., Towson, Md., has added to its line of electric drills of streamline design the ¼-in. tool here shown. The graceful lines are said to aid balance and ease of handling. The motor power has been increased 33 1/3 per cent over previous models. Anti-friction bearings are used throughout, the armature and chuck spindle being mounted on ball bearings. The switch handle is of entirely new design. The drill has a universal motor, furnished for all voltages. The weight of the tool is only 5¾ lb.

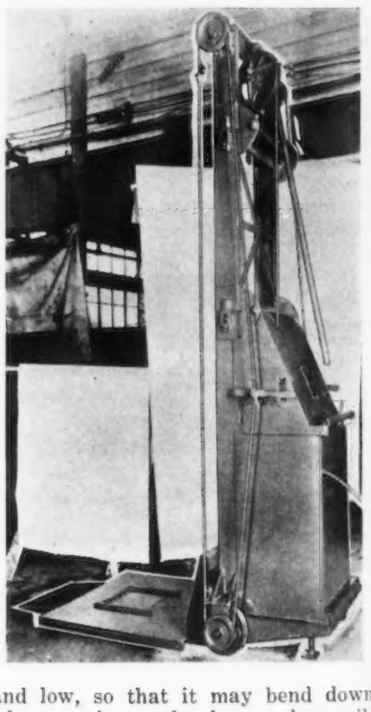


New Grades of Carboloy

SIX new grades of Carboloy cemented carbide, developed primarily to obtain improved performance in special fields of application, have been added to the six grades previously marketed by the Carboloy Co., Detroit. Applications include rough and finish boring, finish turning and facing of steel brake drums, single point finish boring of steel connecting rods, reboring of automotive cylinders, and turning-facing-boring of piston rings. It is stated that release of the six new grades is part of a long-range program of development of special grades for use where it is felt that improved results can be obtained.

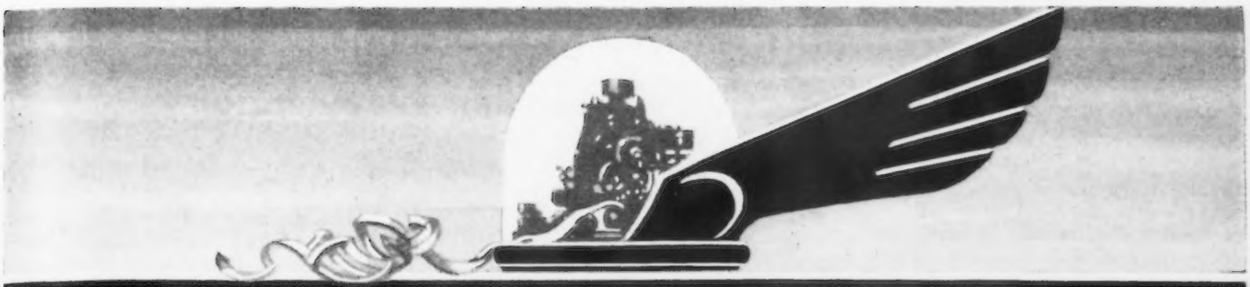
Portable Unit Stacks Barrels and Drums

FOR handling both barrels and drums the Lewis-Shepard Co., Boston, Mass., is offering the new "Safety" barrel stacker or portable elevator here illustrated. The machine can be equipped with holding strips on the platform to prevent the barrel rolling off, with a turntable in the platform to permit turning of drums, and with removable rollers for handling cases. Platform rolls can be furnished to permit rotating the barrels so that they will come "bung up" in the rack. The machine is provided with double "knee action" or hinges, both high and low, so that it may bend down when moving under beams, low ceilings or through doorways.



A new method of designing blast-furnace lines was suggested in a paper presented to the (British) Iron and Steel Institute by Dr. Jindrich Sarek, Czechoslovakia. It takes into account the volume changes undergone by the burden as it descends in the furnace through the plastic stage and then into the molten stage. The method calls for a knowledge of the character of the ores smelted and of the coke used and requires a temperature diagram to be plotted for the charge worked. The dimensions of three particular blast furnaces were calculated in the paper.

The annual meeting of the Electric Metal Makers Guild will be held at the Pittsburgh Athletic Association, Pittsburgh, June 29 and 30. Technical sessions have been arranged by a local committee, consisting of J. H. Chivers, chairman; L. B. Knox and D. J. Giles.



THE NEWS OF THE WEEK

Steel Workers Register Big Vote Against Walkout

INTERESTING evidence as to why the widely heralded steel strike did not and will not materialize, was forthcoming last week when the workers in a number of the United States Steel Corpn.'s plants revealed the results of a special secret poll on the strike issue.

The strike ballot was arranged through the initiative of the employees who desired the opportunity of officially registering their views on the strike question. Opportunity for this was afforded by the fact that the regular primary elections for the nomination of employee representatives occurred in June in most of the corporation's plants. These elections were conducted exclusively by the employees with no management participation.

The highest strike vote was at the Farrell works of the Carnegie Steel Co., where 251 ballots were in favor of a walkout and 3176 were against such a move. In this case, the total strike vote represented 7½ per cent of the total vote. At the other plants the strike vote ran below 5 per cent of the total vote.

At the Tennessee Coal, Iron & Railroad Co., 7964 employees were eligible to vote, 6750 were at work at the plant during the two election days and 7003 voted, indicating that 253 not on duty made the trip to the works in order to express their views. Of those who voted, 6811 or 97.3 per cent opposed a strike, 119 favored a strike and 73 ballots were voided.

Spang Gets Three Votes

At the Duquesne plant of the Carnegie Steel Co., over 86 per cent of the eligible employees voted for employee representatives and William J. Spang, president of the "Dukane" lodge of the Amalgamated and leader of the so-called "rank and file" committee, received three votes out of a total of more than 4300 cast.

Opposition to the Amalgamated union was also indicated by the high participation of employees in the primary elections under the employee representation plan. Of more than 100,000 eligibles at the 25 plants where primaries were held, over 90 per cent voted. This showing is considered excellent in view of the fact that participation in the primaries is always smaller than in the elections which follow.

Labor Finds New Means of Expression

The precedent set by the employees of the corporation, in registering their views on the strike question through secret ballot, may be the first step toward affording labor a means of expression to the public. Heretofore, in such industries as steel, the public has had to depend upon the statement of professional labor leaders on the one hand and of employers on the other in the case of threatened labor disputes. Both sides are likely to be discounted, in the public mind, as "interested" parties. When labor in the plants of an industry, however, speaks with such an overwhelming majority voice as in the case of this strike vote, there is no chance of misinterpreting its attitude.

PWA Rescinds Buy-At-Home Restrictions

LARGE sums of money will be saved taxpayers in construction of future public works, according to the Illinois Manufacturers' Association, through an order issued by Harold L. Ickes, public works administrator, that all future non-federal projects shall be awarded solely upon the basis of the lowest responsible bidders. The order rescinds former local preference regulations covering purchase of materials.

Commenting on the order of Secretary Ickes, R. E. Wantz, president of the Illinois Manufacturers' Association, stated that this abolition of Buy-at-Home restrictions would permit purchases being made in the open market under free and open competition which should tend to reduce costs of construction.

The decision was reached following a meeting of State engineers in Washington at which the Illinois Manufacturers' Association and other state industrial organizations presented objections to Buy-at-Home policies inaugurated by the Public Works Administration as "not always in the interest of employment or economy." Exception was taken by the association to a PWA regulation for non-federal jobs which required, where available, the use of materials produced where the job was located.

It was pointed out that there were many practical objections to these local preference regulations and particularly that they established a dangerous precedent that would create a new form of economic barrier at local and state boundary lines.

B. & M. R.R. Orders Stainless Steel Train

THE Boston & Maine Railroad has ordered a new stainless steel, stream-lined train, capable of speeds in excess of 100 m. an hr., which is being built by the Edward G. Budd Mfg. Co., Philadelphia. The new train will cut nearly a third off the running time of the fastest express, but, by virtue of its high speed, it will replace two ordinary steam trains and cover a greater daily mileage than any railroad train has ever accomplished in equal running time in regular service.

Leaving Portland early in the morning, the train will make a quick run over the 115 m. to Boston, then head north again through Portland to Bangor, a distance of 250 miles, return to Boston in the late afternoon, and again double back to Portland in the evening, ready to start all over the

next day. The total distance is 730 miles.

The new train, which will be ready for delivery in November, will consist of three stainless steel cars each fabricated into one piece of steel by the shotweld process. It will be powered by a two-cycle, 660-hp. Diesel engine in the forward car, built by the Winton Engine Co., a subsidiary of the General Motors Corpn. There will be accommodations for 148 passengers, complete buffet service and baggage space.

Screw Thread Strength Investigated

REPORT of an investigation on the "Strength of Screw Threads Under Repeated Tension," by Herbert F. Moore and Proctor E. Henwood, is contained in Bulletin No. 264, being published by the Engineering Experiment Station of the University of Illinois, Urbana, Ill.

The investigation was undertaken to obtain test data on the behavior under repeated tensile load of ⅜-in. studs with three kinds of screw threads—die cut Whitworth and U. S. Standard threads, and a thread formed by cold rolling—of ⅜-in. studs made from ordinary low carbon steel, and of similar studs made from heat-treated alloy steel.

Stress concentration factors found were somewhat lower than those in the earlier investigation by the photo-elastic method (described in Bulletin No. 245), and it is suggested that a safe estimate of the stress at the root of the thread would be, not the nominal value P/A, but 3P/A for ordinary structural steel, and 4P/A for heat-treated alloy steels commonly carried in stock, where P is the load in pounds and A the area at the root of the thread in square inches. For a limited time, copies of the new bulletin may be obtained from the experiment station without charge.

Ryerson Opens Plant Addition at St. Louis

THE new offices and plant addition of Joseph T. Ryerson & Son, Inc., at 5 Clinton Street, St. Louis, were opened recently with a buffet luncheon, followed by a trip through the plant. Several of the company's officials from Chicago were with R. B. Wilson, manager of the St. Louis plant, for the opening.

This new addition to the Ryerson plant and equipment will greatly increase the company's facilities for storing and dispatching steel and allied products in the St. Louis area.

British Steel Export Market Is Active—Brazilian Navy Inquiry

LONDON, ENGLAND, June 18 (*By Cable*).—Pig iron is firm. New business is quieter, but early expansion is expected. The Ford Motor Co. has started a large blast furnace at Dagenham, using Wabana ore.

New business in semi-finished steel is quiet, but deliveries are heavy. Finished steel is active, particularly for overseas shipment and large shipments are being made to South Africa, China, India, Russia and South America. The home market is taking large tonnages of structural steel. The sheet trade hopes to secure substantial Russian orders now on offer.

The Government has received application for increased duties on girders, beams, joists and bifurcated rivets.

Large Brazilian navy orders are pending and British firms are likely to obtain contract for nine destroyers. The Tynseside firm has booked contract for 10,000-ton motorship Australia.

United Kingdom May exports of pig iron were 11,162 tons of which none went to the United States. Total exports of iron and steel were 190,575 tons.

The tin plate market is hesitant and is still awaiting news of international agreements. The market position is unchanged.

Continental iron and steel markets are quiet but statistical position is satisfactory. United Kingdom demand for semi-finished steel is spasmodic, but fair demand is reported from Rumania, Bulgaria and Italy. Merchant steel is quite active, but joists are quieter. Continental mills have booked a Russian order for 15,000 tons of plates.

The German group of the International Tube Cartel is demanding a larger share of German home market but other groups are not amenable. Nevertheless an understanding is likely and cartel is not believed to be threatened.

British Prices, f.o.b. United Kingdom Ports

Per Gross Ton

Ferromanganese, export	£9
Billets, open-hrth.	£5 10s. to £5 15s.
Tin plate, per base box	17s. 3d. to 17s. 6d.
Steel bars, open-hearth	£7 17½s.
Beams, open-hrth.	£7 7½s.
Channels, open-hearth	£7 12½s.
Angles, open-hearth	£7 7½s.
Black sheets, No. 24 gage	£9 5s.
Galvanized sheets, No. 24 gage	£11 5s.

Official Continental Prices, f.o.b. Continental Ports

Per Metric Ton, Gold £

Current dollar equivalent is ascertained by multiplying gold pound price by 124.14 to obtain franc equivalent and then converting at present rate of dollar-franc exchange.

Billets, Thomas	£2 7s.
Wire rods, No. 5 B.W.G.	£4 10s.
Steel bars, merchant	£3 5s.
Sheet bars	£2 8s.
Plates, ¼ in. and up	£4
Plates, 3/16 in. and 5 mm	£4 2s. 6d.
Sheets, ⅛ in.	£4 7s. 6d.
Beams, Thomas	£3 2s. 6d.
Angles (Basic)	£3 2s. 6d.
Hoops and strip base	£4 2s. 6d.
Wire, plain, No. 8	£5 7s. 6d.
Wire nails	£5 15s.
Wire, barbed, 4-pt. No. 10 B.W.G.	£8 15s.

Tests Carrying Capacity Of Expansion Rollers

THE load-carrying capacity of small rollers, similar to those used as expansion rollers and rockers of girder and truss bridges, is discussed by Wilbur M. Wilson, in bulletin No. 263 of the Engineering Experiment Station, of the University of Illinois, Urbana, Ill. Tests were made on rollers varying in diameter from 2 in. to 120 in. made of the following kinds of steel: medium grade carbon steel castings, structural steel of various carbon contents, manganese steel castings, and high-carbon tool steel, both after the materials had been "stress-relieved," and after they had been hardened by heat treatment.

The bearing value of a roller, as defined in this bulletin, is the load producing a plastic flow of 0.001 in. per inch when the roller is rolled 1000 strokes at the given load. This criterion was adopted because the curve showing the relation between load and plastic flow does not contain a definite "break," and it seemed desirable to have some criterion for determining the bearing value that would not involve the personal equation. It does actually determine as the bearing value a load such that increases beyond this load are accompanied by a rapid increase in the rate of plastic flow.

The test results indicate that, for a pair consisting of a roller and base having the same physical properties, the strength was as great as, possibly somewhat greater than, that for a pair formed by replacing either the base or the roller with another of greater strength.



THIS WEEK IN WASHINGTON

Labor Legislation Is Modified

Steel Strike Postponed Largely Through Promise of Increased Bargaining Power for Unions Under New Law

By L. W. MOFFETT
Resident Washington Editor, The Iron Age

WASHINGTON, June 19.—Directed immediately toward averting a steel strike, though setting up machinery to settle all labor disputes, the compromise labor resolution rushed through Congress last Saturday reflects the views of President Roosevelt. At the same time it also carries provisions similar to those recommended by President William Green of the American Federation of Labor in the course of his dramatic appeal at the Pittsburgh convention of the Amalgamated Association of Iron, Steel and Tin Workers. Mr. Green, as his remarks were interpreted here, in effect told the workers they could not win a strike at this time, and that recognition of the union was out of the question pending a more powerful organization. Therefore, he urged "postponement" of the strike, a sort of an armistice, apparently to extend to July 1, in order to see what Washington will do about it.

Meanwhile officials of the union prepared to call again on the President and lay the situation before him. This despite the fact that the President now has a law of his own bidding and obviously cannot go beyond it, regardless of what labor may ask. Scrapping the plan agreed upon between American Iron and Steel Institute and National Recovery Administrator Hugh S. Johnson, organized labor is credited with having forced through Congress a compromise for the Wagner labor disputes bill, that strenghtens its hands greatly.

The act does not grant outright union recognition. It does not provide that the majority may speak for all workers. Mr. Green did not go so far as to demand recognition, but he did again urge organized labor's demand that the majority speak for all workers when representatives are chosen at elections for purposes of collective bargaining.

The resolution, to expire June 16, 1935, however, grants to President Roosevelt authority to establish mediation boards, the boards to have power to hold elections to determine representation in collective bargaining with penalties provided for failure to obey orders of the boards. The only change of importance made in the resolution from its form as introduced was an amendment offered by Senator LaFollette of Wisconsin. This amendment may have political significance. Otherwise it is unimportant for it simply declares what is already a law and socially recognized giving employees the right to strike or to "engage in other concerted activities."

Senator Wagner and other proponents of his original bill were disappointed that it had been shelved but stated it would be brought up again at the next session, just as Representative Connery of Massachusetts said his 30-hr.-week bill would be reintroduced. It was all indicative of the fact that the labor situation both legislatively and in industry itself appears to be far from settled.

The immediate interest in the labor legislation designed first to avert a steel strike lies in the character of the boards to be set up by the President, a subject which likely will be discussed with him by union labor officials, including those from the Amalgamated association. The more conservative leaders, who through the efforts of Mr. Green succeeded in staying a strike they did not want to take place, feel that quick action must be taken if the more radical members are to be held in line and prevented from starting trouble in the steel industry.

The resolution marks another effort to clarify the much disputed Section 7A of the National Industrial Recovery Act. To this end the board or boards to be set up by the President may investigate "practices or activities of employers or employees in any controversies" arising under that section. The wide sweep of these investigations may be readily seen, for they can concern anything which is reputed to threaten to burden the free flow of interstate commerce. Some organizations have protested that this and other wide powers given by the resolution really makes it more objectionable than the original Wagner bill.

The board or boards, which will succeed the National Labor Board, can order and conduct elections by secret ballot, a reiteration of powers the National Labor Board is supposed to have, to determine by what person or persons or organization may be desired for purposes of collective bargaining. The word "organization" was struck out by Republicans at a conference on the measure but, at the

insistence of the President, it was restored.

The board may enforce such elections, according to the resolution, by ordering the production of documents or appearance of witnesses to give testimony under oath. The order may be enforced or reviewed upon application of the board itself or by any person or persons to whom it is directed.

In rejecting the proposal to strike out the word "organization," the President made it clear that it is his view that under Section 7A employees have the right to select whatever agencies they choose to represent them in collective bargaining "whether their choice is the King of Siam, the National Geographic Society or any organization under the sun." The employer, he held, must treat with this choice as the representative of his employees. This view is one diametrically opposed to that held by many important industries and industrial organizations. These latter have charged it permits of "labor racketeering" by outside organizations.

The President, however, maintained that labor has the right under this section to be represented by any individual, any group of individuals or any organization—whether a company union or an affiliated trade union—which the employees may select to choose. For this reason, he urged, the privilege of labor to industrial representation must not be limited to "person or persons" but must extend to all "organizations" as well. His firm attitude brought quick concession from the Republicans.

New Reciprocal Tariff Act Is Radical Change in Basic Policy

WASHINGTON, June 19.—The reciprocal tariff act is in effect. It became a law last Tuesday night when President Roosevelt put his signature to the legislation. Bitterly contested in Congress, though easily passed over protests from Republicans, the measure marks an entirely new tariff policy for the United States. It gives to the President the power to negotiate reciprocal tariff agreements and also to adjust tariff rates up or down to the extent of 50 per cent of the tariff duty. There is no legislative review of any kind in either case. Congress completely surrendered its authority or its voice in saying what imports levies shall be laid on incoming goods so long as the President does not make changes greater than the range prescribed. It is the first time that treaties can be made without the advice and consent of the Senate, or that a tax can be laid by the Chief Executive of the United States. The constitutionality of the legislation was vigorously challenged and many think it may be tested in court before the act expires. It was enacted as another piece of "emergency" legislation with a life of three years.

Proponents claim it will afford a powerful vehicle for building up international trade through bargaining. Opponents have declared that it sets up uncertainty in that American industry and agriculture cannot know when or how suddenly protection now afforded to it may be sharply slashed and open it to competition with foreign goods produced by cheap labor.

Much Authority to One Man

Perhaps the strongest objections made to the legislation outside of purely political circles, is that it gives too much authority to any one man and that it marks a further step toward abdication by Congress of its responsibilities and duties. This criticism is in no way of a personal character. It does not mean that the law gives to President Roosevelt as an individual too much power. There is assuredly no thought that either he or any other President would consciously abuse that power. Rather the point is made that it is not possible for any President to familiarize himself with all the facts surrounding changes in tariff rates and to comprehend the intricacies they involve.

The theory back of the legislation appears to be that the old method of revising tariffs by Congress is too slow. This was the view expressed by Secretary Wallace in "America Must Choose." Mr. Wallace said in this work that a general revision of tariff laws by Congress would be entirely ineffective to meet the situation today. Anyone, he stated, who has witnessed the course which such a congressional revision follows, can appreciate that. It would be far too slow, he pointed out. Further, however, he declared that even though the President does get the tariff powers—powers which he now has—it will probably take several years of the most careful negotiating before a sufficient volume of foreign purchasing power will be restored to enable American agricultural exports to proceed again in normal fashion.

Congress Too Slow

Critics have pointed out that the average change in tariff laws by Congress has required one year to 18 months. Secretary Wallace's opinion, if sound, that it will take several years to work out tariff adjustments under the new act, apparently loses weight under this circumstance. It raises the question also as to why, if this view is correct, the power of adjustment should be forsaken by Congress.

Partisanship aside, the prevailing opinion appears to be that the new act will not bring about much change, if any, within anything like the near future at least, in international trade. There is apparently no great fear that the President will let down the much touted "tariff barriers," as protective duties are so glibly phrased, especially in foreign propaganda and those sources which are naively susceptible to it. To do so would run directly counter to the principle of minimum wages and shorter hours, all with a view to building up purchasing power, on which the National Industrial Recovery Act is built. It would run counter to the perils of depreciating and quickly changing foreign currencies.

Two-Thirds of Imports Duty Free

Morever, the point has been made that approximately 65 per cent of imports coming into the United States are duty free. That leaves only about one-third of incoming shipments which can be subjected to barter. They are competitive products, just as much of the duty-free shipments are either non-competitive or less competitive than those carrying duties. It is the non-competitive products which the United States industries want to see enter freely. Tin, rubber, and other items not produced in the United States and are entered duty free cannot be made the object of tariff bargaining. Only dutiable goods can be used to negotiatiate "Yankee trading," of which so much has been heard.

The question is what products shall these be? The United States produces virtually all of the basic commodities. A world suffering badly for markets is eager to enter the market of the United States, and apparently some now are laying plans to enter it more widely.

It has been reported that products that might be made the object for negotiations—on which duties would be lowered in return for lower duties on American exports—would be those of "inefficient" industries; that is the bargaining would not sacrifice products so much as they would inefficient industries. The idea appeared to be that some units of given industries could get along with less protection than could other units of the same industries. When reports were first published of a more or less "scientific" plan to classify industries, such as

non-essential, inefficient and efficient industries, and adjust tariff rates for bargaining purposes accordingly, denials were immediately forthcoming. This would indicate that this plan is not in contemplation now, even if it were when the legislation was first suggested.

Proponents of the legislation contend that it is realistic recognition of the fact that in order to increase exports it is necessary to increase imports; otherwise foreign trade would be off-balance and could not be continued unless through extension of American credits whose coverage might be seriously doubted if judged by vast unpaid European credits including both those growing out of the war and out of commercial trade that sprang up so voluminously shortly after the war, but only with the support of American capital—a sort of arrangement by which American capital paid for its own exports, a lifting of one's self by one's bootstraps.

The State Department through Secretary Hull is credited with being the most zealous sponsor of the legislation. The department is now setting up machinery to carry on trade negotiations with foreign countries, so it is reported, and officials are represented as believing new trade agreements will eventually be made with some 25 or 30 countries. The research staff has been given an appropriation of $100,000.

But crumbling of the "tariff barriers" has not yet begun. On the contrary, the President recently increased levies on Japanese rugs by reason of increased costs arising from NRA code operations. There are many other items from oriental as well as European countries which American industrialists now claim must be subjected to higher rather than lower duties if the NRA principle is to be maintained, and they want to maintain the principle. They wish to do so for their welfare as well as for that of their employees. They obviously see that the two are interlinked. The great effort is to increase employment, not to add to the still huge army of 10,000,000 now unemployed. Without restoration of employment, purchasing power is greatly weakened and industry suffers. Purchasing power in the United States is built upon both employment and decent wages, not upon coolie wages paid by many countries with which "Yankee traders" will have to barter if these countries, enormously anxious to break into the United States markets, have their way.

The Harlem Metal Corpn., New York, has leased a large waterfront property on the east side of the Harlem River, south of 144th Street, New York, for a scrap iron yard. In addition to the waterfront, a railroad siding has been acquired which will accommodate about six cars.

Congress Authorized Investigation of Tin Situation—Supplies To Be Studied

WASHINGTON, June 19.—Investigation into the tin situation, including the extent of the United States' dependence for supplies upon foreign sources, the possibility of using a substitute in making munitions, and the accepting of shipments as payment in kind on foreign debts is to be undertaken as the result of a resolution adopted by the House last Friday. Although most of the information, aside from the implied "payment in kind," is rather well known the study is to be taken up at hearings by the House Committee on Foreign Affairs or a subcommittee of the committee. The resolution was sponsored by Representative Caldwell of New York. Representative Faddis of the House Committee on Military Affairs recently reported favorably from the latter committee a bill, approved by the War Department, proposing to conserve tin supplies by prohibiting exportation of tin plate waste material except by certifications from the War Department. The report of the Military Affairs Committee, like many reports gathered by the War Department, and other Government sources, covered information sought in the Caldwell resolution.

Among other things the Caldwell resolution authorizes the investigating committee to learn are the following:

The extent to which the United States is dependent upon foreign nations for its supply.

The ownership and control of tin resources of the world.

The possibility of manufacturing the munitions, motors and other items essential to the national defense and economic welfare of the country without tin, or by the use of any known substitute.

The extent to which the nation or nations owning or controlling the tin resources of the world are indebted to the United States for sums due and unpaid.

Whether acquisition by the United States of foreign tin resources, "in fair and mutually agreeable exchange" for the debts owing the United States by the nations controlling such resources or otherwise, would improve the "present costly and dangerously dependent position of the United States with respect to this matter."

To complete the sweep of the inquiry the resolution also calls for a study of all other questions "in relation thereto" that would aid Congress in any necessary legislation.

Hearings may be held in any part of the United States, whether the House is in session, is in recess or has adjourned. Witnesses will be required, if necessary, to produce books and other documents, and to testify under oath.

Authorizes Loans To Small Industries

WASHINGTON, June 19.—One of the last major bills to be enacted by the 73rd Congress authorizes up to $680,000,000 in loans to small industries, school districts, and individual enterprises. The measure empowers the Federal Reserve Board to make its present estimated surplus of $139,000,000 available for business loans while the Secretary of the Treasury is authorized to lend a like sum to aid industry. The Treasury would be repaid by the Federal Reserve System through part of the dividends on Federal Deposit Insurance Corpn. stock. The act also authorizes the Reconstruction Finance Corpn. to make available $300,000,000 of its resources for loans to small business. Loans for individual enterprises would be limited to $500,000. Authorization is given for a loan of $75,000,000 to school districts and $25,000,000 to irrigation districts.

The housing bill, the object of heated controversy, was finally enacted and provides a total of about $3,200,000,000 for the building and modernization of homes. It makes possible conversion by financial institutions of three to five-year mortgages to 25-year insured amortized mortgages to protect home owners. Guarantees from the Government are given.

Steel makers in England before very long will have to write off Australia entirely and South Africa partly from their books, in the opinion of W. R. Lysaght, who, as president of the Iron and Steel Institute, told the recent meeting of that body in London of his visits to the plants of the Broken Hill and Australian Iron and Steel companies in Australia and the Pretoria works in South Africa. He emphasized the modern character of the machinery and equipment of the Broken Hill works; "a model for the world," and said that the ore was delivered to the furnaces at 8s. a ton and pig iron was being made at less than £2 a ton. The pig iron cost at the South African works was put at not much over £2 a ton.

Code Exemptions on Federal Contracts—Steel Casting Amendments Heard

WASHINGTON, June 19.—An order by Administrator Johnson has been announced granting limited exemption from codes that are in conflict with statutory provisions or well established procedure relating to contracts awarded by the United States government, the District of Columbia, the various States or political subdivisions.

The order is that members of industry subject to codes who bid on contracts to be awarded by governmental agencies are exempted from compliance with any code provisions governing the making of quotations to governmental agencies which prohibit any of the following practices, and notwithstanding code prohibitions, bidders may:

(a) Quote prices and terms of sale to governmental agencies as favorable as those permitted to be quoted to any commercial buyer for like quantities.

(b) Quote definite prices or terms of sale, not subject to adjustment resulting in increased costs during the life of the contract, for definite quantities and for definite periods not to exceed three months (unless a longer period is now permitted by any such code).

(c) The same as "(b)" for indefinite quantities for six months or longer.

(d) Quote prices and terms to apply on contracts to become effective not more than 60 days from the date of the opening of bids.

(e) Quote prices f.o.b. point of origin and/or f.o.b. destination.

The order specifies "that the exemption hereby granted shall be limited to and operative only in connection with quotations made by such members to governmental agencies; that nothing in this order contained shall operate to permit deviation from or abandonment of open price and cost protection provisions now or hereafter contained in any such code; and that nothing in this order contained shall relieve any such member at any time from the duty of complying with all other provisions of such codes."

Hearing on Steel Casting Amendments

Proposed amendments to the approved code for the steel casting industry were considered at a hearing Thursday. The amendments, two of which would establish as code violations the refusal to furnish information as required in the code and selling below published price lists, include a provision setting up a uniform cost accounting system and one covering terms of sale which would bring these discounts in line with the existing code for the steel industry. Additional fair trade practice provisions were also suggested and submitted for administration approval.

Following formal presentation by Merrill G. Baker, New York, a former vice-president of the Steel Founders Society of America, who spoke on behalf of the code authority, John P. Frey, secretary-treasurer, Metal Trades Department, A. F. of L., representing the International Molders Union, objected to the reference made to labor under one of the fair trade practice amendments to the draft gear sub-division of the code. This provision declares it to be an unfair trade practice to "misappropriate a competitor's business by..... enticement of employees." This is "directly a labor matter" and the phrase should be eliminated," Mr. Frey said. J. R. Cardwell, of the Cardwell-Westinghouse Co., Chicago, who spoke for the sub-agency concerned with the draft gear section, agreed to the deletion of this reference to employees. Frey also suggested a number of specific changes to the code which would make the document more satisfactory to labor. One of these would establish an industrial relations board. Other features he said already existed in most of the metal working codes were also recommended.

J. W. Glover, Glover Machine Works, Marietta, Ga., objected to the provision which would prohibit members from quoting lump sum prices on quantities of 25 or less castings. He said the clause would work a hardship on the small steel foundries in the industry. F. A. Lorenz, vice-president American Steel Foundries, and chairman of the code authority, briefly defended the proposed section under question and denied that it would adversely affect the small members of the industry. It is considered to be a "fair measure" by the majority of the industry, he said.

Codes Approved

Administrator Johnson has approved six additional codes, supplementary to the approved master code for the machinery and allied products industry. The codes approved cover the pulverizing machinery and equipment industry, the steam engine manufacturing industry, the reduction machinery industry, the rock and ore crusher industry, the hoist builders' industry and the hoisting engine manufacturing industry.

In the case of each code, General Johnson stayed the provision relating to a waiting period between the date of filing and effective date of price lists, stayed the provision for industry control of distributing outlets subject to the submission of further satisfactory evidence concerning distribution of products, and also stayed temporarily certain trade practices in each code for 15 days to give members of the industries an opportunity to be heard on them if they so desired. The pulverizing machinery code becomes effective June 20 and the next three on June 22, and the last two on June 23.

All four codes provide for uniform cost accounting systems, open price lists and forbid selling below reasonable cost when the code authorities determine that an emergency, due to destructive price cutting, exists.

Hearings on Codes and Amendments

Hearing on a number of amendments proposed by the administration for the approved code for the steel plate fabricating industry will be conducted by Deputy Administrator Walter G. Hooke, June 25. The amendments are proposed under the terms of the administrator's order approving this code on April 6, and involve the following changes: (1) Extension of the code to cover all territory subject to the jurisdiction of the United States, except the Philippine Islands; (2) Limiting the maximum work-week to a flat 40-hr., of five consecutive days and eight consecutive hours each, with permission for employer and employees to agree to a lesser number of days not to exceed 9-hr. each where it is necessary to work less than 40-hr. per week; (3) Permission for overtime in cases of emergency, with all excess time to be paid for at the rate of time-and-one-half for shop work, and double time for all repair, renewal and construction or erection work; (4) Prohibition against employment of apprentices, except upon permission from the Administrator; (5) Increasing the minimum wage from 30c. to 35c. per hr. in Louisiana, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Florida and Mississippi; (6) Abolishing the population differential for clerical employees and establishing a flat minimum wage of $15 per week for all workers except factory and construction employees and commission salespeople; and (7) Inclusion of further safeguards for workers under the section dealing with general labor provisions. It is announced, also, that the code's definition of "the industry" will be reconsidered to eliminate a possible conflict between the erection provisions of this code and those of the code for the construction industry.

Hearings will be conducted on supplemental codes of fair competition for 13 groups in the automotive parts and equipment manufacturing industry, as follows:

Monday, June 25: Oil filter manufacturing product group, internal combustion engine manufacturing product group, and powdered metal bearing manufacturing product group.

Tuesday, June 26: Automotive gasket manufacturing product group, carbure-

tor manufacturing product group, radiator manufacturing product group.

Wednesday, June 27: Automotive electrical lighting and reflecting devices manufacturing product group and spark plug product group.

Thursday, June 28: Automotive shop equipment manufacturing product group and piston ring manufacturing product group.

Friday, June 29: Replacement valve and valve parts manufacturing product group, replacement automotive water pump and parts product group, replacement piston and pin manufacturing product group.

Objections to the proposed budget and schedule of contributions from members of the industry for the support of the code authority for the wire, rod and tube die industry should be filed in Room 4036 of the Commerce Building prior to Thursday, June 28.

Objections to proposed amendments to the approved codes for the cylinder mold and dandy roll industry and the scientific apparatus industry, providing for the submission of a proposed budget and schedule of contributions for the support of the code authorities to the administrator for approval should be submitted to him prior to Thursday, June 28.

Budgets for the packaging machinery and the canning and packing machinery and equipment industries for 1934 have been approved by NRA. The budget for the former totals $9,850, based on contributions of one mill on total sales volume for 1933, while the budget for the latter industry totals $15,000, based on four mills on the net sales volume for 1932.

Code Authorities Approved

Administrator Johnson has approved the method of selection and recognized the personnel of code authorities for the following industries:

Reinforcing Materials Fabricating Industry—William H. Pouch, president, Concrete Steel Co., New York; George E. Routh, Jr., vice-president, Kalman Steel Corpn., Bethlehem, Pa.; Henry H. Straus, vice-president, Inland Steel Co., Chicago; Charles M. Gunn, president, Gunn-Carle & Co., San Francisco; J. W. Jones, vice-president, Austin Brothers, Dallas, Tex.; Albert Weihl, general manager, Pollak Steel Co., Cincinnati; C. Louis Meyer, president, Concrete Engineering Co., Omaha; E. E. Greist, president, Franklin Steel Co., Youngstown; O. W. Irwin, vice-president, Truscon Steel Co., Youngstown; D. B. Knowlton, sales manager, Dudley Bar Co., Bessemer, Ala.; E. W. Langdon, manager reinforcing department, Joseph T. Ryerson & Son, Inc., Chicago; Hugh J. Baker, president, Hugh J. Baker & Co., Indianapolis; B. M. Boisseau, president, Virginia Steel Co., Richmond, Va.; Ralph Healy, manager reinforcing sales department, Igoe Brothers, Newark, N. J., and W. J. Kibler, president, Buffalo Steel Co., Tonawanda, N. Y.

Tool and Implement Manufacturing Industry—Fayette R. Plumb, president, Fayette R. Plumb, Inc., Philadelphia; A. C. Haeffner, manager, David Wadsworth & Son, Auburn, N. Y.; A. E. Newton, vice-president and general manager, Collins Co., Collinsville, Conn.; R. Harte, president, Ames, Baldwin, Wyoming Co., Parkersburg, W. Va; G. B. Durell, chairman, American Fork & Hoe Co., Cleveland; S. S. Vaughan, president, Vaughan & Bushnell Mfg. Co., Chicago, and H. W. Conarro, president, Warren Axe & Tool Co., Warren, Pa.

Non-Ferrous Scrap Metal Trade—Jonas Adler, Kahn Brothers, Brooklyn; George Birkenstein, S. Birkenstein & Sons, Inc., Chicago; Gilbert Cohn, Morris & Cohn, Chicago; Harry S. Goldstein, L. Goldstein's Sons, Philadelphia; H. B. Grevnin, National Smelting & Refining Co., Detroit; Milton Levenson, Roxbury Iron & Metal Co., Inc., Boston; A. Lipkowitz, Atlas Metal Co., Cleveland; Henry Rosenthal, Joseph Rosenthal's Sons, Inc., Philadelphia; E. E. Cury, Cline & Bernheim, Nashville, Tenn., and M. W. Zack, M. W. Zack Metal Co., Detroit.

Metal Treating Industry—Arthur H. Nuesse, secretary, Wesley Steel Treating Co., Milwaukee; R. J. Hoensheid, Commercial Steel Treating Co., Detroit; W. S. Bidle, president, W. S. Bidle Co., Cleveland; Theodore Wiedeman, Wiedeman Machine Shop, Philadelphia, and A. D. Bach, president, New England Metallurgical Laboratories, South Boston, Mass.

Collapsible Tube Industry—Chairman, Stanley E. Rumbough, president, White Metal Mfg. Co., Hoboken, N. J.; Frederick Remington, president, Peerless Tube Co., Bloomfield, N. J.; K. Kleinbeck, president, Atlantic Mfg. Co., Newark, N. J.; H. S. Darlington, president, A. H. Wirz, Inc., Chester, Pa., and A. W. Paul, president, Wheeling Stamping Co., Wheeling, W. Va.

President Delegates Secretary Perkins To Negotiate Steel Labor Controversy

WASHINGTON, June 19.—President Roosevelt has left to Secretary of Labor Frances Perkins negotiations to avert a steel strike. In an official statement issued at six o'clock this evening, the President, following a conference of about three hours with Miss Perkins, said he had empowered her to represent him in taking whatever action seems advisable under the circumstances. He also expressed the hope that some method would be found to adjust all points that are in controversy.

It was pointed out that Miss Perkins had discussed with him proposals of both the steel industry and the Amalgamated Association of Iron, Steel and Tin Workers, the latter being the plan adopted last week at the Pittsburgh convention.

Confers With Amalgamated

The President's statement came immediately after he had been called upon by a delegation from the Amalgamated association, who were taken to the White House by President William Green, of the American Federation of Labor. The steel union delegation was headed by its president, M. F. Tighe. Mr. Tighe formally presented to the President the Pittsburgh Plan and requested that he transmit it to the steel manufacturers for their consideration.

The President apparently chose instead to issue his statement. It is clear that strong efforts are being made to bring the steel union representatives and the steel producers together to decide upon a settlement of the threatened strike. There was evident an air of optimism that it would be averted. Mr. Tighe, after the conference with the President, said the delegation had a very satisfactory interview with him. The delegation called at the White House shortly after five o'clock and joined Miss Perkins in conference with the President. The President's statement followed immediately afterwards.

The joint resolution proposing to set up a board or boards for adjustment of labor disputes was signed this afternoon by the President.

Elections Proposed

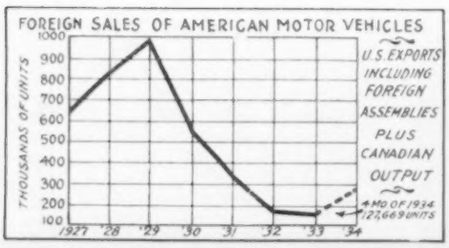
In commenting on the situation earlier in the day, the President had said that the "best guess" is that the Administration will proceed with elections at steel plants as early as possible. At that time it had not been decided whether or not the National Labor Board, headed by Senator Robert F. Wagner, will administer the machinery set up by the joint resolution enacted by Congress last week as a substitute for the Wagner Labor Disputes Bill. The measure proposes a mediation board or boards to arbitrate labor disputes and conduct elections. The President will leave Washington tonight and said he did not expect to make any appointments on a board until he returns next week.

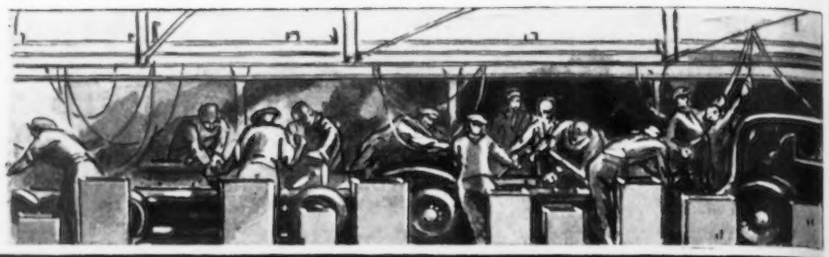
The President said the real problem is setting up machinery for conducting elections in the different plants. He pointed out that it would mean a tremendous strain on the trained personnel of the Government to hold elections simultaneously. It was indicated that they will proceed at groups of plants as early as possible until they are all covered.

Wagner Not to Serve on Labor Board

Following his conference with President Roosevelt this afternoon, Senator Wagner said that negotiations to settle labor disputes under the new law would follow procedure similar to

(Concluded on Page 69)





THIS WEEK ON THE

Retail Car Sales and Production Stimulated by Price Cuts

DETROIT, June 19.

RETAIL price slashes, at last participated in by Ford, have had the effect of stimulating business temporarily and postponing for at least a few weeks an inevitable curtailment in automobile production. This "shot in the arm" is enabling dealers to reduce inventories and manufacturers to maintain assemblies at sufficient volume to yield a total of at least 280,000 units during June. Chevrolet alone will make 90,000 to 100,000 passenger cars and trucks, while Ford is reported to have scheduled about 85,000.

With Ford finally following the example of Chevrolet and Plymouth, scarcely a car manufacturer remains who has not instituted a downward revision of retail prices. On the surface, the sage of Dearborn appears to have a powerful selling argument. Ford prices are being cut from the December, 1933, level, above which they never had been raised. Chevrolet and Plymouth staged as graceful a retreat as possible from price advances made about April 1. Chevrolet is now only $5 below the January price and Plymouth is higher than at show time.

The alertness with which Ford is meeting every situation quickly and decisively as it arises is encouraging to those who are asserting that it will finish the year in first place. Chevrolet, on the other hand, is exerting its full energies to recapture the premier position which it held for three consecutive years. By means of its new prices it hopes to make and sell 150,000 more units than it would if it had held to the old prices.

It is plain that the industry, as a whole, is feeling its way cautiously. It is not anxious to push 1935 models into the foreground until all the possibilities have been wrung from present lines and until some of the uncertainties in prospective legislation and labor relations have been dissipated. Meanwhile, it intends to spend plenty of money advertising and selling current models. Production during the summer will be synchronized with sales. All companies seem to be laying plans to have dealers cleaned out of stocks of old cars at the time when next year's cars start rolling off the assembly lines, eliminating the necessity for "fire sales."

It is possible that the same element which worked in favor of a well-sustained retail demand for cars in the summer and fall of 1933 may energize the market again during the next four months—the threat of higher prices. If the trend of materials costs and of labor continues upward, and higher prices for 1935 models appear certain, as they did a year ago for 1934 models, speculative buying may assume considerable proportions. Of course, no conclusive evidence is available on this point at the moment; modifications or changes in NRA codes probably would have a profound influence.

Trade-In Allowances Retard Sales

Not the least among the code changes which would aid motor car buying during the off-season would be the removal or liberalizing of the rules governing trade-in allowances on old cars. There probably are thousands of old car owners who have told dealers in the last few months that they will run their present vehicles another year, or even two, unless they are granted what they believe is a reasonable figure as a trade-in value. Accustomed to "horse-trading" with dealers, a practice encouraged for years by the dealers themselves, owners are putting on pressure to secure what they think they should get, and in some cases are succeeding.

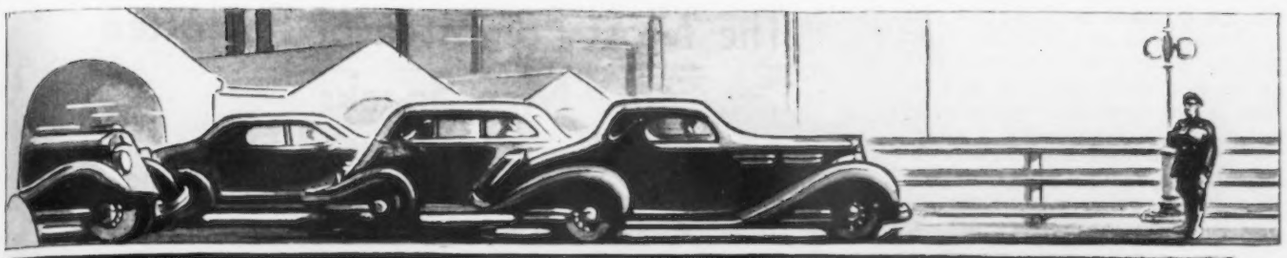
Automobile manufacturers have been lukewarm toward the retail code since its inception. Theoretically, they believe it excellent but practically they say it cannot successfully be applied to 35,000 dealers scattered throughout 48 States. Chiseling is understood to have been attempted by some dealers almost from the beginning. That is, no dealer openly violated the code by allowing more for trade-ins than the book value, but it is said that in certain cases dealers were so eager to possess fountain pens belonging to prospects that they paid as much as $50 for them and then returned them with their compliments to their original owners. There seems to be more than one way of violating codes and still staying within the law.

It is no secret that manufacturers of quality cars attempted recently to have trade-in allowance provisions liberalized, because of the large discounts on new cars given dealers who can afford to take a loss on an old car and still make a reasonable profit on the new car deal. However, this proposal was rejected. Unquestionably, present provisions are proving to be a deterrent to new car sales.

Code Evasions Likely to Increase

With business declining seasonally and dealers eager to move stocks on hand, evasions of the retail code are bound to increase, according to opinion in Detroit. It is considered only a matter of time until important modifications must be made in the code, particularly with regard to the control of trade-in allowances.

Response to price declines has been



ASSEMBLY LINE

By BURNHAM FINNEY
Detroit Editor, THE IRON AGE

immediate. In some instances dealers have gone so far as to order a trainload of cars, and rush shipments have been requested. This increased business has not been reflected in augmented factory operations in the case of all manufacturers. A few companies have supplied dealers from zone warehouses and also have given dealers the opportunity of reducing their stocks.

While the drought is beginning to put a blight on sales in the Northwestern agricultural sections, car makers are of the opinion that the decline in trade there will be largely offset by good sales in the South from Georgia to Texas. Cotton crops are expected to command firm prices, and the proportion of the nation's wheat crops raised east of the Mississippi and south of the Ohio will be larger than usual this year. Added to crop incomes will be Federal money for the acreage reduction program.

Parts Prices Lowered

With the decline in retail car prices has come an insistent demand from several large manufacturers for downward revision of parts prices. Chevrolet was the first company to ask for concessions, and other divisions of General Motors are understood to have followed suit. Now Chrysler is said to be asking some of its suppliers to do some refiguring of prices. Although the general aim appears to be a 10 per cent paring down of contract prices, it is known that in certain cases a settlement is being made on the basis of 5 per cent. In still other cases, where suppliers can show that they cannot afford to cut prices below the first-half contract terms, they are being granted orders on the same basis as in the first six months of the year.

Manufacturers of certain materials used by Chevrolet are known to have engaged in severe competitive bidding for its last half business. Contracts finally placed called for prices considerably less than in the first half. Despite these healthy concessions, Chevrolet is understood to have requested a 10 per cent reduction in the contract prices.

It is believed that about 90 per cent of the parts for Chevrolet cars are fabricated by Chevrolet itself or by other General Motors divisions. The story is that the Chevrolet management did not exclude these divisions from lowering prices, but asked them to go along with outside suppliers.

Briggs Has Large Program

Slight change has occurred the past week in the status of new model tooling programs. The fact that Briggs Mfg. Co. is reputed to have two shifts of 800 men each working in its pattern shop and its tool and die departments is exciting interest. Briggs is said to have ahead one of the biggest die programs in its history. It has plans for a good-sized extension to its stamping departments at its Mack Avenue plant, necessitated by improvement in its business this year.

Ford, beginning to think about next year, is expected to start making contracts for parts for its 1935 car about Aug. 1. It is understood to be planning on the launching of volume production on the new job shortly after Oct. 1. Ford is reported to have been developing a streamline body which may be put on one or more of its 1935 models. Since mechanical changes are expected to be minor, the chances of an equipment buying program seem slim. Instead of going into concentrated tool purchasing, Ford is likely to adhere to its long-established policy of placing orders continuously to plug up any weak spots which are revealed in its production lines.

Equipment Business Still Postponed

While a few orders for equipment have been placed by the Pontiac Motor Co. for its six, the bulk of the business has not yet been released. Turning out about 6500 cars this month, Pontiac is expecting to continue operations until the middle of August, when it will shut down to tool up its plant for 1935 models. It is believed that it will introduce its new models in October.

Plymouth is feeling the beneficial effects of recent price cuts and has begun production of a Special Six, which apparently is the small wheelbase car similar to the Standard Six with de luxe features. The result is that operations are being maintained at 1800 cars a day. Last week Plymouth shipped from its local factory about 7500 cars.

Next year's tooling programs for all Chrysler divisions are said to have been held up temporarily. The Chrysler management evidently has not yet determined to what extent it wishes to make capital expenditures for new equipment. Several equipment builders estimate that they have out $1,000,000 in quotations and the total pending business, including rebuilding of machine tools, is roughly estimated at $2,000,000.

Hudson made 11,782 Terraplanes and Hudsons in May, compared with 5846 in the same month a year ago. For the five months ended May 31, Hudson produced 60,745 cars, as against 16,557 in the same period of 1933. Buick and Oldsmobile have not altered plans to make June the best month this year in number of assemblies.

Detroit Notes

Cadillac-LaSalle reached a new sales peak for the year in May, during which its retail deliveries were double

The Cost of Government Splurging

The Detroiter who purchases a certain make of low-priced car pays a spread of $87.31 between the list price at the factory and the delivered price at his door (the spread is about the same for other cars in the same price class). The items making up this spread include $31.50 for standard accessories (bumpers, spare tire and tube, tire lock and metal tire cover), $13 for delivery charges and $3.28 for gas and oil. The remainder, amounting to $39.53, consists of government taxes as follows:

Federal excise tax	$15.42
Cotton processing tax	1.56
Tire tax	1.80
State sales tax	20.75

those in the same month of last year. . . . General Motors sold abroad 83,811 units in the first five months of 1934, an increase of 93 per cent over the total in the corresponding period of last year. Gains were made in almost every foreign market, with particular emphasis on South America, the Far East, South Africa and Australia. . . Detroit is speculating on what use Chrysler will make of the old LaSalle plant recently acquired from General Motors. Chrysler has not revealed its plans for utilizing this additional space, which is in the western section of the city. All its other divisions are on the East Side. . . Pontiac is reported to have bought recently a number of used presses from the Toledo and Elyria plants of Willys-Overland.

British Steel Output Higher During May

LONDON, ENGLAND, June 18—(*By Cable*).—Production of steel ingots in Great Britain during May totaled 780,000 gross tons, compared with 716,800 tons in the preceding month and with 599,600 tons in May, 1933. With the exception of March of this year, when 829,700 tons was produced, the May total was the highest in four years.

Pig iron production also rose to 527,900 tons, establishing a record for the year and also for the last four years. Output in April was 496,300 tons, while in May, 1933, only 339,300 tons was produced.

Production figures in 1933 and the first five months of this year were as follows:

1933	Pig Iron	Steel Ingots
Jan.	286,600	444,400
Feb.	270,800	482,700
March	332,200	577,700
April	324,700	509,600
May	339,900	599,600
June	345,600	568,800
July	343,900	567,500
Aug.	362,700	551,300
Sept.	359,700	669,000
Oct.	373,300	668,300
Nov.	374,900	695,000
Dec.	409,300	668,900
	4,123,600	7,002,800
1934		
Jan.	441,300	711,000
Feb.	414,400	707,500
March	503,600	829,700
April	496,300	716,800
May	529,900	780,000

Bethlehem Taking Over Williamsport Company

THE Bethlehem Steel Corpn., Bethlehem, Pa., is organizing a new subsidiary to take over and acquire plant and business of the Williamsport Wire Rope Co., Williamsport, Pa., manufacturer of wire rope, cables, cableways, etc., in receivership since September, 1932, and will continue operations at same location.

The Most Forgotten of Forgotten Men Speaks

What the New Deal Really Means to the Average American Manufacturer

The following extracts from a letter of a typical American manufacturer, with a moderate-sized plant, illustrate the difficulties industry is encountering under the "New Deal":

WE are afraid to hire outside men because of their radical records, born of the injustices of this spring's labor troubles fostered by the NIRA Section 7A and the unjust decisions of the Labor Board. What are we to do? Our production is off 20 per cent per man hour. We have been forced to put on a night shift, with its low production, notwithstanding we are only 50 per cent capacity. We will not buy more machinery, due to our lack of confidence and the uncertainties in our Government. One day SILVER is to be king; next day it isn't. Next day it's a compromise. Next day one ruling of NRA; next day another.

Misdirection of Talent

My thoughts go back to three months ago in Washington where I saw the leaders of our industry, not a hundred of them but thousands, away from their business trying to make a rigid formula fit every condition of industrial life. Men waiting, complaining to secretaries of overworked officials about delays. Men there to stay two days but kept waiting 10 days. Overworked officials ready for nervous breakdowns. Auditors working 17 hr. a day trying to get the intricacies of industry into such form that fagged minds could grasp.

The thought comes to me that if all this friction, coercion, cracking down and misfitting could be suspended, and all the talent allowed to go back to its normal channels, would not our prosperity come just as quickly and much more smoothly?

Two Hens Can't Hatch an Egg in Half the Time

There are thousands of our best talent in America that have either died or broken down with this horseplay. Our research or development work is so hampered by hours that we do not know what to do. There are only a few men who are able to carry this on and they can't be found; and you can't put two men on to cut the time in two no more than two hens can hatch an egg in half the time. ***The limit of increased employment is the natural division of labor.*** That is where most industry is today.

The other way in which we are being affected is the contribution of this Administration to happiness. Our men are essentially happy and satisfied, but the A.F.L. will not let them stay that way. ***Outside pressure is always keeping them dissatisfied.***

Purchase of Capital Goods Discouraged

We have a department we want to push with all our might, but we are afraid because of labor and because of the Securities Act. We would like to raise from $500,000 to $1,000,000 and put this to work in this subsidiary. We don't dare to do so because of the uncertainties and the attitude of Washington on all industry and finance, and the reckless way in which a new billion dollar give-away can be proposed, and the fact that the easiest thing to put through Congress is this sort of measure.

We are mad over figures, statistics, meetings every week, reports and orders from Johnson. A year ago we were breaking even on 30 per cent less business. This year we are not making the grade. Our costs have gone flying and we cannot get the increased prices from our trade.

The other way industry is affected is that the NIRA Section 7A has measurably weakened the discipline, so necessary for the running of an organization, without substituting anything of equal value.

Responsibility of Those in Power Is Too Remote

I also observe that those who make decisions in Washington are invariably high-minded men of integrity, but have a limited appreciation of the profound secondary effects of their decisions and, in many cases, not a sound conviction as to the primary effects. Henry Ford said it briefly and partially when he described them as men who have never had to meet a payroll. They have the dogmatic stubbornness of a bachelor who never had to change his mind to attain personal peace. Their *responsibility* is not *personal* and is too remote. Labor is likewise remote from the responsibility of its acts. It can stop an entire industry, costing millions to the nation, on a demand for a 25 per cent raise, when it is getting 65c. per hour, and for recognition of the A.F.L. who wrote the law.

Steel Output Dips Following Postponement of Strike

Rate Declines to 60 Per Cent of Capacity; Washington Is Scene of Latest Maneuvers of Organized Labor

POSTPONEMENT of the steel strike has relieved tension in the iron and steel industry and ingot production has receded from 61 to 60 per cent of capacity. The decline in output is surprisingly small and suggests that the strike threat had a much smaller part in driving in tonnage than the desire of consumers to escape price advances that go into effect on third quarter business. At Pittsburgh, in fact, production has risen two points to 54 per cent of capacity, a new high for the year, and there were gains of four points to 78 per cent in the Wheeling district, three points to 61 per cent at Buffalo and one point to 47 per cent in the Philadelphia territory. But these increases were more than offset by four-point recessions to 65 per cent at Chicago and 62 per cent in the Valleys.

JULY 1, the new tentative date for the walkout of the Amalgamated union, coincides exactly with the expiration of second quarter contracts, and is expected to usher in a very quiet month in the industry. While some steel consumers are allowing a part of their second quarter tonnage to lapse, buyers as a rule have ordered virtually all the steel covered by their contracts. How much of this tonnage is anticipatory because of the saving in price is a matter of conjecture. The more conservative consumers have limited their stock accumulations to such sizes as they are certain to need. And other users, in contrast with those who built up inventories because of the strike threat, are known to have withheld tonnage pending a passing of the general uncertainty growing out of industrial unrest and legislative possibilities at Washington. It is hoped that a moderate amount of imperative buying will originate from this group. To date, however, virtually no third quarter business has developed, but this is not surprising since the amended steel code has removed the incentive for forward covering.

EXISTING backlogs for the next quarter are confined almost entirely to contracts for rails. railroad equipment steel, structural and reinforcing steel for identified projects and tin plate, which are not limited to a calendar quarter. The recent expiration of the 60-day grace period for protections on building steel at pre-advance prices served to drive in considerable tonnage which will bolster operations during the summer. The trend of structural steel and plate awards also points to a continuation of a fair rate of activity for mills rolling the heavier products.

FABRICATED steel awards of 28,000 tons are among the largest this year and compare with 16,200 tons in the preceding week. Plate lettings of 19,460 tons include 17,760 tons for a bay crossing pipe line at San Francisco. A revival of drilling in the east Texas oil fields is stimulating demand for oil country goods, and pipe mill operations generally are making a creditable showing, averaging 50 per cent of capacity.

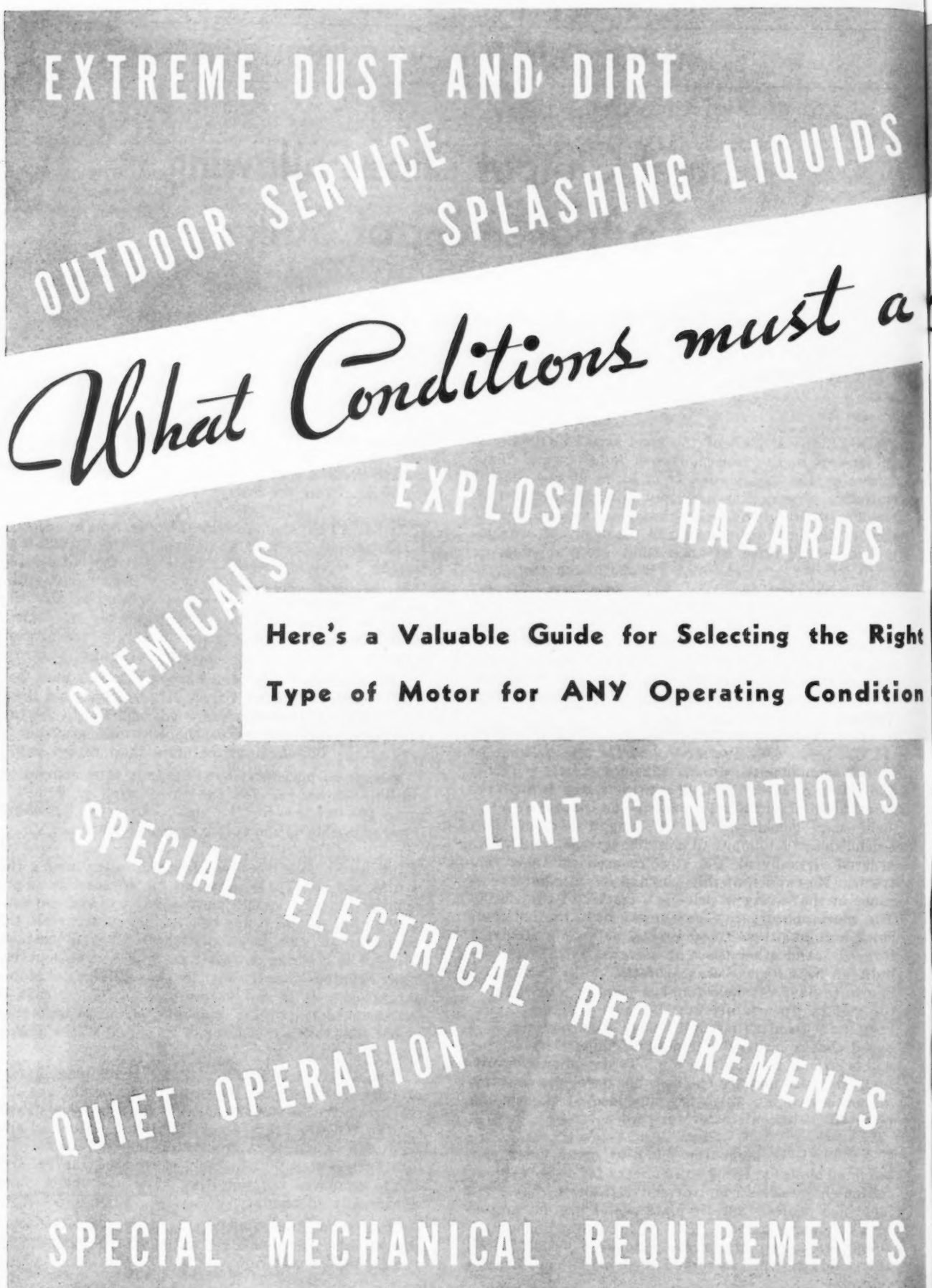
The Seaboard Air Line has placed 1000 steel box cars with the Pullman Car & Mfg. Corpn., and there are indications that Western roads will add to the rail purchases concluded under the Eastman program if carloadings and earnings maintain their recent gains.

Scrap, as measured by THE IRON AGE composite, remains unchanged for the third week at $10.67 a gross ton, its low for the year. Although quiescent, this commodity is showing a firmer tendency.

THE weakness of the Amalgamated union among the rank and file of steel company employees was amply demonstrated by recent plant elections, and particularly by the special strike referendum submitted to the employees of one large producer. A real test of strength in a strike at this time would, it is believed, have resulted disastrously to the Amalgamated organization. It is not surprising, therefore, that it has resorted to political maneuvering at Washington rather than risk a revelation of its actual status among steel workers.

Reports that the Administration will immediately proceed with elections at steel plants under the authority of the joint resolution enacted as a substitute for the Wagner bill are not credited in informed circles. No board of a quasi-judicial character could take such a step without first examining the validity of the employee elections that have just taken place in virtually all plants.

THE IRON AGE composite prices for finished steel and pig iron are unchanged at 2.199c. a lb. and $17.90 a gross ton respectively.


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▲▲▲ A Comparison of Prices ▲▲▲

Market Prices at Date, and One Week, One Month, and One Year Previous
Advances Over Past Week in Heavy Type, Declines in Italics

Pig Iron

	June 19, 1934	June 12, 1934	May 22, 1934	June 20, 1933
Per Gross Ton:				
No. 2 fdy., Philadelphia	$20.26	$20.26	$20.26	$16.34
No. 2, Valley furnace	18.50	18.50	18.50	15.50
No. 2 Southern, Cin'ti	19.13	19.13	19.13	16.51
No. 2, Birmingham†	14.50	14.50	14.50	12.00
No. 2 foundry, Chicago*	18.50	18.50	18.50	16.00
Basic, del'd eastern Pa.	19.76	19.76	19.76	16.09
Basic, Valley furnace	18.00	18.00	18.00	15.00
Valley Bessemer, del'd P'gh	20.76	20.76	20.76	17.59
Malleable, Chicago*	18.50	18.50	18.50	16.00
Malleable, Valley	18.50	18.50	18.50	15.50
L. S. charcoal, Chicago	24.04	24.04	24.04	23.17
Ferromanganese, seab'd carlots	85.00	85.00	85.00	68.00

†This quotation is for delivery in South; in the North prices are 38c. a ton under delivered quotations from nearest Northern furnace.

*The switching charge for delivery to foundries in the Chicago district is 60c. per ton.

Rails, Billets, etc.

Per Gross Ton:				
Rails, heavy, at mill	$36.37½	$36.37½	$36.37½	$40.00
Light rails, Pittsburgh	35.00	35.00	35.00	30.00
Rerolling billets, Pittsburgh	29.00	29.00	29.00	26.00
Sheet bars, Pittsburgh	30.00	30.00	30.00	26.00
Slabs, Pittsburgh	29.00	29.00	29.00	26.00
Forging billets, Pittsburgh	34.00	34.00	34.00	31.00
Wire rods, Pittsburgh	38.00	38.00	38.00	35.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	1.70	1.70	1.70	1.60

Finished Steel

Per Lb.:	Cents	Cents	Cents	Cents
Bars, Pittsburgh	1.90	1.90	1.90	1.60
Bars, Chicago	1.95	1.95	1.95	1.70
Bars, Cleveland	1.95	1.95	1.95	1.65
Bars, New York	2.23	2.23	2.23	1.95
Plates, Pittsburgh	1.85	1.85	1.85	1.50
Plates, Chicago	1.90	1.90	1.90	1.70
Plates, New York	2.13	2.13	2.13	1.598
Structural shapes, Pittsburgh	1.85	1.85	1.85	1.60
Structural shapes, Chicago	1.90	1.90	1.90	1.70
Structural shapes, New York	2.10¼	2.10¼	2.10¼	1.86775
Cold-finished bars, Pittsburgh	2.10	2.10	2.10	1.70
Hot-rolled strips, Pittsburgh	2.00	2.00	2.00	1.55
Cold-rolled strips, Pittsburgh	2.80	2.80	2.80	2.00

Finished Steel

	June 19, 1934	June 12, 1934	May 22, 1934	June 20, 1933
Per Lb.:	Cents	Cents	Cents	Cents
Hot-rolled annealed sheets, No. 24, Pittsburgh	2.65	2.65	2.65	2.10
Hot-rolled annealed sheets, No. 24, Gary	2.75	2.75	2.75	2.20
Sheets, galv., No. 24, P'gh	3.25	3.25	3.25	2.70
Sheets, galv., No. 24, Gary	3.35	3.35	3.35	2.80
Hot-rolled sheets, No. 10, P'gh	2.00	2.00	2.00	1.50
Hot-rolled sheets, No. 10, Gary	2.10	2.10	2.10	1.60
Wire nails, Pittsburgh	2.60	2.60	2.60	1.85
Wire nails, Chicago dist. mill	2.65	2.65	2.65	1.90
Plain wire, Pittsburgh	2.30	2.30	2.30	2.10
Plain wire, Chicago dist. mill	2.35	2.35	2.35	2.15
Barbed wire, galv., P'gh	3.00	3.00	3.00	2.35
Barbed wire, galv., Chicago dist. mill	3.05	3.05	3.05	2.10
Tin plate, 100 lb. box, P'gh	$5.25	$5.25	$5.25	$4.25

Scrap

Per Gross Ton:				
Heavy melting steel, P'gh	$11.75	$11.75	$12.25	$11.75
Heavy melting steel, Phila	10.50	10.50	10.50	9.25
Heavy melting steel, Ch'go	9.75	9.75	10.75	8.87½
Carwheels, Chicago	9.75	9.75	10.75	9.50
Carwheels, Philadelphia	12.50	12.50	12.50	10.25
No. 1 cast, Pittsburgh	12.25	12.25	12.75	10.50
No. 1 cast, Philadelphia	12.25	12.25	12.25	10.25
No. 1 cast, Ch'go (net ton)	7.50	7.50	8.50	8.75
No. 1 RR. wrot., Phila	12.25	12.25	12.25	10.75
No. 1 RR. wrot., Ch'go (net)	7.50	7.50	8.50	6.50

Coke, Connellsville

Per Net Ton at Oven:				
Furnace coke, prompt	$3.85	$3.85	$3.85	$1.75
Foundry coke, prompt	4.60	4.60	4.60	2.50

Metals

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Electrolytic copper, refinery‡	8.75	8.75	8.25	7.75
Lake copper, New York‡	9.12½	9.12½	8.62½	8.00
Tin (Straits), New York	51.25	51.25	53.40	44.95
Zinc, East St. Louis	4.20	4.25	4.35	4.35
Zinc, New York	4.55	4.60	4.70	4.72
Lead, St. Louis	3.85	3.85	3.85	4.05
Lead, New York	4.00	4.00	4.00	4.20
Antimony (Asiatic), N. Y.	7.90	7.90	8.37½	6.50

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our detailed price tables. ‡Blue Eagle copper.

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▲▲▲ The Iron Age Composite Prices ▲▲▲

	Finished Steel	Pig Iron	Steel Scrap
June 19, 1934	2.199c. a Lb.	$17.90 a Gross Ton	$10.67 a Gross Ton
One week ago	2.199c.	17.90	10.67
One month ago	2.199c.	17.90	11.17
One year ago	1.892c.	15.01	9.96
	Based on steel bars, beams, tank plates, wire, rails, black pipe, sheets and hot-rolled strips. These products make 85 per cent of the United States output.	Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.	Based on No. 1 heavy melting steel quotations at Pittsburgh, Philadelphia and Chicago.

	Finished Steel		Pig Iron		Steel Scrap	
	High	Low	High	Low	High	Low
1934	2.199c., April 24;	2.008c., Jan. 2	$17.90, May 1;	$16.90, Jan. 27	$13.00, Mar. 13;	$10.67, June 5
1933	2.015c., Oct. 3;	1.867c., April 18	16.90, Dec. 5;	13.56, Jan. 3	12.25, Aug. 8;	6.75, Jan. 3
1932	1.977c., Oct. 4;	1.926c., Feb. 2	14.81, Jan. 5;	13.56, Dec. 6	8.50, Jan. 12;	6.42, July 5
1931	2.037c., Jan. 13;	1.945c., Dec. 29	15.90, Jan. 6;	14.79, Dec. 15	11.33, Jan. 6;	8.50, Dec. 29
1930	2.273c., Jan. 7;	2.018c., Dec. 9	18.21, Jan. 7;	15.90, Dec. 16	15.00, Feb. 18;	11.25, Dec. 9
1929	2.317c., April 2;	2.273c., Oct. 29	18.71, May 14;	18.21, Dec. 17	17.58, Jan. 29;	14.08, Dec. 3
1928	2.286c., Dec. 11;	2.217c., July 17	18.59, Nov. 27;	17.04, July 24	16.50, Dec. 31;	13.08, July 2
1927	2.402c., Jan. 4;	2.212c., Nov. 1	19.71, Jan. 4;	17.54, Nov. 1	15.25, Jan. 11;	13.08, Nov. 22

Pittsburgh Rate Up Two Points to 54 Per Cent



Wheeling District Operations Also Rise But Valley Average Recedes—Quiet July Foreseen — Scrap Firmer

PITTSBURGH, June 19.—Finished steel specifications against second quarter contracts are practically all placed, and producers of some products, including pipe and merchant bars, are facing the busiest fortnight in many months. The final drive to produce and ship all specified tonnage by the code deadline on June 30 has boosted operations in the Pittsburgh district two points to 54 per cent, a new high for the year. A reverse trend is in progress in the Valleys and nearby northern Ohio mills, where operations are down four points to 62 per cent. Output in the Wheeling district has swung four points higher to 78 per cent.

The temporary lifting of the steel strike threat was timed almost perfectly with a virtual deadline for acceptance of second quarter specifications, and producers will therefore not be harassed for the remainder of the month by vexing labor uncertainties. Some consumers who had apparently been cautious in contracting for second quarter requirements have sought to supplement previous commitments with spot purchases. But few producers of sheets, strip, pipe and bars are able to accept additional tonnage, except in unusual cases. There is no pressure whatever on cold-finished steel bar and tin plate mills to roll committed tonnage, while wire mills also are not so severely taxed as other departments. A sustained heavy demand for oil country goods is forcing some small pipe mills to run at capacity; larger units are considerably less active.

Although the strike threat drove in considerable tonnage, it is now believed by optimistic steel men that a good deal of potential tonnage had been withheld because of general uncertainty growing out of labor problems and labor measures at Washington. Now that the issues have been somewhat clarified some steel producers are approaching third quarter with hopes of a moderate amount of imperative buying. There is no gainsaying, however, that July will be a poor month from the standpoint of volume, since consumer inventories are fairly well fortified with anticipatory tonnage and the price provisions in the new steel code furnish no incentive for forward purchasing.

The scrap market appears to be growing firmer, with No. 1 heavy melting steel unchanged.

Pig Iron

Low-priced second quarter contracts are expected to be fully specified before the end of June. Shipments against such orders are fairly brisk, and the aggregate movement in June will probably surpass May tonnage by a good margin. Non-integrated steel mills are not taking basic and Bessemer as freely as earlier in the month. There is a definite lack of interest in new tonnage, from both large and small consumers. Foundry activity in this district continues to be lethargic.

Semi-Finished Steel

Detached pipe mills have increased their takings of skelp. Non-integrated sheet and strip mills are still accepting fairly heavy deliveries of sheet bars. Wire rods are also in good demand. Practically all current shipments are against pre-advance contracts. Very little spot tonnage at the new prices is reported.

Bolts, Nuts and Rivets

Activity is marking time pending opening of third quarter books some time this week. No changes are expected in the present discounts, which are 70 per cent off list for machine and carriage bolts, and 70 and 5 per cent off list for small rivets. Large rivets are quotable at $3 base per 100 lb., Pittsburgh or Cleveland.

Rails and Track Accessories

Releases against rails and companion fastening orders are coming in on schedule. Except for an unimportant flow of miscellaneous railroad requirements, the market is very quiet.

Bars

Some merchant steel bar mills are now engaged on the busiest fortnight recorded this year. Although general specifications have declined, tonnage is being released against some orders that had apparently not been expected to be fully specified. Hence, with this tonnage supplementing already ample backlogs, schedules at some mills will not slacken until the final shipping date on June 30. A small amount of spot business at 1.90c., Pittsburgh, is reported, but third quarter tonnage booked thus far is far from significant.

Specifications against general contracts for billet steel reinforcing at pre-advance prices are very heavy. All quotations on specific projects made prior to the advance early in the second quarter have been protected for 60 days. The protective period, however, will be ended shortly, and all new business will be subject to the present price of 2.05c., Pittsburgh, in straight lengths as quoted by distributers.

Cold-Finished Steel Bars

Specifications last week were very light. Consumers lack the incentive of a price advance, and are restricting releases against second quarter commitments. Agricultural implement makers are taking deliveries at contract rates, but business from the automotive industry has kept aggregate volume at a low point. Household equipment manufacturers are accounting for a fair part of the current movement.

Shapes and Plates

Absence of new railroad construction, barge work and tank projects has brought a lull to the plate market. No particular impetus is provided by the prospective uniform establishment of a higher price on July 1. Current tonnage is almost entirely restricted to barge repair jobs and railroad maintenance needs.

Fresh structural inquiries in the past week were encouraging, with some railroad bridge work in evidence. A sprinkling of private work likewise brightened the list. The Fort Pitt Brewing Co. at Sharpsburg, Pa., plans a brewery addition, for which 300 tons of structural steel may be required. Plans for another distillery building at Linden, N. J., specify 1100 tons. All new work is now being bid on the basis of 1.85c. a lb., Pittsburgh.

Tubular Products

Actual drilling in East Texas oil fields has tended to sustain a very heavy demand for oil country goods. Unquestionably a good share of current deliveries of oil country goods, as well as standard pipe to jobbers, is ascribable to the price saving feature of low-priced second quarter contracts. Most pipe mills are expected to maintain current operations, which range from 50 per cent to full engagement of capacity. Pressure tubes and mechanical tubing are relatively quiet.

Wire Products

Specifications have diminished noticeably, while shipments against contracts are being accelerated in anticipation of the delivery deadline on June 30. Wire mill operations are being sustained at 50 to 55 per cent, and little difficulty is expected by producers to ship all tonnage specified by the end of the month. The merchant trade has accounted for the bulk of

recent specifications. Manufacturers' wire for industrial consumption, particularly in the automotive industry, has been disappointingly quiet.

Sheets

Specifications against second quarter contracts have declined sharply, but at the same time producers are not particularly anxious for additional June tonnage. Operations are largely unchanged from the recent average rate of 68 to 70 per cent. A sharp drop in the current rate, however, is in prospect for next week. The heaviest operations in hot mills are about over for the quarter, and the final fortnight in this period will be devoted largely to processing and finishing of sheets. Current shipments are moving to a well diversified list of consumers, with motor car manufacturers playing a relatively unimportant part. A surprisingly good volume of third quarter sheet business of a miscellaneous character has been placed. Backlogs for the coming quarter on the whole are not impressive.

Tin Plate

Releases are somewhat slower, while operations are holding up fairly well. Revised schedules at several large units this week, however, will tend to push down the average for the group to about 70 per cent. Perhaps postponement of the strike threat will prove to be a further deterrent to specifications which have held up very well in the face of drought conditions. Rainfall in some of the dry areas has brought considerable benefit to crops so that the effect on seasonal packs may not be so severe as previously expected. Heavy stocks in canners' hands, however, will likely play some part in the early movement of tin plate.

Strip Steel

Hot-rolled strip is uniformly established at 2c. at lb., and cold-rolled strips at 2.80c. a lb., Pittsburgh, for third quarter delivery. Some mills had apparently not realized the code requirements for refiling prices for third quarter, but it is reported that all mills have now met that detail. Fresh specifications against old second quarter contracts have declined, but most mills are not open for additional tonnage this month, except possibly for narrow sizes. Little change from the present operating average of 60 to 65 per cent for the strip mill industry is expected for the remainder of the month.

Coal and Coke

Inquiry for practically all grades of fuel is limited to unimportant spot tonnage. The Lake movement thus far this season has been unusually light, and some coal producers believe an accumulated demand for such shipment exists. At least, Western Pennsylvania producers have not participated to any measurable degree in the seasonal Lake business this year. Calls for foundry and furnace coke are likewise infrequent. Beehive coke producers, who are under a section of the bituminous coal code, and who are governed by minimum code prices, are placed at a disadvantage when competing with by-product coke producers who are not bound by any code dictates.

Scrap

Scattered evidences of underlying improvement in the scrap market are beginning to appear. Although no definite information as to disposal of the Pennsylvania Railroad scrap is available, it is reported reliably that the No. 1 steel on the list was sold at around $12.50, delivered. On that basis ordinary No. 1 heavy melting steel is nominally appraised at $11.50 to $12. Dealer bidding for machine shop turnings and short shoveling turnings has boosted the price 50c. a ton to $7.50 to $8. Railroad specialties are up 25c. a ton as a result of bidding against recent railroad lists. A sale of a moderate tonnage in the past week has established low phosphorus billet crops 50c. a ton higher at $15.50 to $16.

Upturn in Automotive Demand at Cincinnati

CINCINNATI, June 19.—A sharp upturn in automotive demand for finished sheets has resulted in brisker mill operations. In addition, local mill interests report the appearance of good early third quarter bookings. The sudden rush, the past week, included demand for stock material and any overages available, while the third quarter orders will assure slightly better than one week's full operations in July. The Middletown and Ashland units of the leading district interest are at full capacity and schedules for the remainder of the month indicate little change in this rate. Average district operations are in excess of 60 per cent. With a clearing of labor clouds mill interests are optimistic over third quarter possibilities.

Pig Iron

Furnace interests are concentrating efforts on assuring delivery of material before June 30, with a resultant stimulation of shipments. Melters, however, are wary of stocking too much iron, fearing renewed labor difficulties. New inquiry too is lacking.

Coke

There is a steady movement of coke on contract, but no new business.

Scrap

The scrap market reflects the desire of mills to clean up present stocks before making new commitments. Current business is negligible. Prices are nominal and unchanged.

Some Third Quarter Pig Iron Placed at Buffalo

BUFFALO, June 19.—A certain amount of spot buying of pig iron has developed among consumers who have not contracted. Most melters are pressing for shipments of iron which they have under contract. The market is not entirely devoid of third quarter demand. In several cases where foundries have definite orders, they are willing to cover ahead for the required metal. The radiator and boiler industries will have steady operations during the summer, but there has been a subsidence of activity in automotive castings plants.

The plant of the Spring Perch Co., Lackawanna, N. Y., recently destroyed by fire, will be rebuilt. A Buffalo fabricator of structural steel will furnish the 100 tons for the new plant. The city of Rochester will receive bids on 100 tons of reinforcing bars and kindred material for a new bridge at Elmwood Avenue.

The Lackawanna plant of Bethlehem Steel Corpn. is operating 16 open-hearths, Republic Steel Corpn., four, and Wickwire-Spencer Corpn., one open-hearth full and one on part time. Seneca sheet division of Bethlehem is running at 80 to 90 per cent.

The scrap market continues in the doldrums. All prices are nominal because no new sales have taken place. It is unlikely that tonnage, if sold at the present time, would be bought below present quoted prices. One of the largest buyers of a couple of months ago is permitting a few cars of rail scrap to enter each week, though giving the preference in receipts to boat shipments by Lake and Canal.

New England Coke Unchanged for Last Half

BOSTON, June 19.—Foundries continue to evince little interest in third quarter pig iron. As a result sales the past week were limited to a few hundred tons. However, furnaces continue to make heavy shipments on old second quarter contracts, and indications are they will rid their books of most of these before July 1. New England melt, if anything, is slightly lower and now averages around 25 per cent of rated capacity.

Business in scrap has dried up. Steel mill labor uncertainty accounts for the dullness. Local brokers and consumers believe that scrap prices have stopped declining, and that with Congress adjourned business will begin to pick up.

By-product coke producers have opened their books for last half without a change in price. Most New England foundries have signed up.

LEADING PRODUCTS OF BETHLEHEM



Bars, Bands and Special Sections

Carbon steel bars and bands, Bessemer and open-hearth; special and automotive sections of every description; iron bars, double refined; staybolt and engine bolt quality.

Semi-Finished Steel

Carbon billets and slabs, rerolling and forging quality; sheet bars and skelp.

Alloy Steels

Open-hearth and electric-furnace alloy steels for all purposes, hot-rolled and cold-drawn, rough-turned or ground; MAYARI nickel-chromium steels; MAYARI engine bolt and staybolt steels; RESILIA spring steel; SUPERTEMP, for superior physical properties at high temperatures. Bars, bands, billets and blooms.

Bolts and Nuts — Rivets — Spikes
Pole Line Material

Plain and galvanized bolts; machine, carriage, and special; heat-treated, carbon and alloy; MAYARI steel frog, track and fitting-up bolts; DARDELET self-locking threaded bolts and nuts; staybolts, solid and hollow; hot-forged and cold-punched nuts.

Pig Iron

Basic, Bessemer, foundry, low phosphorous, malleable, malleable Bessemer; MAYARI pig iron for making superior alloy iron castings.

Forgings

Carbon and alloy; hammered and hydraulically pressed; drop and upsetter; seamless vessels for oil refineries; high-pressure seamless boiler drums and chemical vessels.

Castings

Carbon and alloy steel (open-hearth and electric), manganese steel, iron, brass and bronze, rough as cast or machined; abrasion-resisting castings. Centrifugal cast bronze sleeves and liners; ingot moulds.

Wheels and Axles

Wrought steel wheels and axles for freight and passenger cars and engine, tender, and trailer trucks; for electric cars; for mine locomotives and mine cars; for cinder, ore and other industrial cars; crane wheels.

Rolled Steel Blanks

For gears, pinions, and flywheels. Tire moulds and mould rings, shaft couplings, brake wheels and drums, and other circular forgings.

Trackwork
for Steam, Electric, Mine and Industrial Railways

Frogs, switches, Bethlehem and NEW CENTURY switch stands, crossings, steel ties, gage rods, rail braces, BETHCO rail anchors; silico-manganese and manganese special trackwork; hook-flange guard rails, guard rail chairs, compromise joints.

Steel Freight and Passenger Cars
Mine Cars
Oil-Burning Equipment

BETHLEHEM-DAHL mechanical-atomizing oil-burning system for stationary and marine service.

Auxiliary Locomotives
Rails and Accessories

Standard tee, girder, girder-guard and high-tee rails; light rails; splice bars, rail clips, tie plates.

Steel Pipe

Butt-welded and lap-welded pipe, black and galvanized; copper-bearing pipe.

Boiler Tubes

Genuine old-fashioned knobbled charcoal iron tubes; double-pass steel tubes. Double-pass copper-bearing steel tubes.

Steel Sheets

Hot-rolled, hot-rolled annealed, cold-rolled, heavy cold-rolled sheets; furniture, heavy furniture, automobile sheets; tack plate; galvanized, flat and formed sheets; painted formed sheets; special-finish sheets. Sheets of BETH-CU-LOY (copper-bearing steel).

Tool Steels

Bethlehem special high-speed steel; carbon and alloy tool steels; cobalt magnet steel; hot-work tool steels; die steels; valve steels; rivet set and pneumatic chisel steels; special tool steels; tool steel billets, of all grades. Rock and mine drill steels, hollow and solid.

Tin Plate

Coke tin plate; black plates; galvanizing, enameling and lithographing stock.

Corrosion-Resisting Steels

BETHADUR and BETHALON, covering practically every requirement for corrosion-resisting steels.

Tools

Rivet sets, punches and dies; chisel blanks and chisels; hot and cold friction saws; steel stamps (letters and figures for hot and cold work); slitting shears, shear blades; special high speed tool holder bits; special tools.

Wire and Wire Products

Plain, bolt, screw, chain, extra-soft rivet and hard bright nail wire; bright processed, annealed, normalized heading and telephone wire; galvanized wire; wire rods; BETHANIZED (special zinc-coated) wire; clothes-line wire; soft-processed wire; stapling wire; border wire; APEX and INVINCIBLE spring wire; barbed wire; SILVER STAR bale ties. BETHLEHEM (CAMBRIA) field and poultry fence. Nails.

Steel Fence Posts

Posts for farm fencing; snow fence posts; highway sign posts.

Structural Shapes

Bethlehem wide-flange beams, girders, and H-columns; joists and stanchions; standard beams, channels and angles; car and shipbuilding shapes; standard and special T- and Z-bars.

Steel Plates

Universal and sheared plates, for all purposes; slabs.

Flanged Products

Tank heads, boiler heads, dome sheets, manheads, yokes, bolts and saddles; miscellaneous flanged plate work.

Concrete Reinforcing Bars

Bethlehem deformed bars of constant section, in standard rounds and squares.

Steel Sheet Piling

Bethlehem steel sheet piling for temporary work, as in cofferdams, and permanent work, as in retaining walls, cut-off walls, and jetties.

BETHLEHEM STEEL COMPANY BETHLEHEM STEEL **General Offices: BETHLEHEM, PA.**

District Offices: Atlanta, Baltimore, Boston, Bridgeport, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Houston, Indianapolis, Milwaukee, New York, Philadelphia, Pittsburgh, St. Paul, St. Louis, Washington, Wilkes-Barre, York. *Pacific Coast Distributor:* Pacific Coast Steel Corp., San Francisco, Seattle, Los Angeles, Portland, Honolulu. *Export Distributor:* Bethlehem Steel Export Corp., New York.

Output Slumps at Chicago Following Strike Postponement



Operating Rate Off Four Points to 65 Per Cent as Cancellations Begin to Appear — Scrap Firmer

CHICAGO, June 19.—With the immediate threat of a strike in steel mills passed, consumers have relaxed their pressure for tonnage. Ingot output, which had reached a high of 69 per cent of capacity, has dropped four points to 65 per cent and producers have little hope of holding this rate more than temporarily. Cancellations are beginning to appear, though their volume is not yet large. The view taken here is that cancellations may actually have merit in that they will lessen the rush at this time and probably tend to even out the production curve later in the summer.

New sales in all lines are almost at a standstill. In fact, some sellers say that the stagnation of purchases such as is now being experienced is unusual even in the dullest contracting periods that have been experienced in recent years. However they explain the situation by abnormal shipments in May and so far in June, the passing of the strike threat, stable prices, the expected lull in summer trade, and new provisions in the code which will spread purchases through the quarter.

Only the scrap market has turned about face with the passing of an immediate strike in steel mills. Their prices are decidedly firmer and brokers are beginning to regret recent sales to mills at prices that marked the bottom of the decline.

Rail and Track Supplies

New buying of standard-section rails is lacking but there are hints from several Western railroads that original purchases were minimum requirements and that there is a possibility that additional tonnages may be bought if car loadings and earnings will permit. Rolling schedules have been revised and according to present plans will hold steady for a number of weeks to come. Miscellaneous orders for track supplies are fair, totaling 1500 tons. Coal mine operators who contracted for light rails at old prices are now specifying for June deliveries.

Pig Iron

Some cancellations are now making their appearance and estimates of June shipments are being scaled downward to 75 per cent above the May rate. At that, the movement this month will be the best of the year. New buying is confined to a few scattered carlots.

Sheets

Operations remain at practical capacity and it daily becomes more certain that second quarter commitments will not be satisfied in full. Price rather than actual need governs most specifications for June delivery and for that reason it is the belief of sellers that at the end of June unsatisfied contracts will be canceled in preference to the issuance of delivery instructions at the high prices now prevailing. New buying is not worthy of note and as a consequence order books are rapidly shrinking toward the vanishing point.

Wire Products

General rains throughout most of the drought area have eased the situation for all crops except wheat. However, farmers are showing extreme caution and their off-season requirements are very low. Another moderate recession in demand from the automobile industry is noted and the use of magnet wires by radio builders is slowing up. Public utilities are confining purchases to maintenance work. The Government will soon buy needed electrical conductors for the Fort Peck, Mont., project. Use of wire rope is slightly improved over a year ago in June. Wire mill operations are at 60 per cent of capacity.

Bars

Sales are light in the absence of third quarter contracting and specifications are moderately lower. There is a further recession in demand from automobile centers and farm implement manufacturers are taking less steel. Road machinery manufacturers are maintaining schedules and some of them are working three shifts. The largest part of current rollings is going into automobiles, while cold-rolled bar producers, farm implement manufacturers and railway spring makers account for much of the remainder.

Structural Material

Awards, at 9000 tons, are swelled by a 4000-ton project for the Semet-Solvay Co. Both the Milwaukee Road and the Southern Pacific have placed bridge tonnage. Otherwise the market is confined to State highway bridge work. Fresh inquiries total less than 4000 tons, including 2100 tons of bridges for Illinois. It is understood here that Government money is now available on an ore dock at Escanaba, Mich. This project will take round tonnages of structural steel, reinforcing bars and steel piling.

Plates

The Seaboard Air Line has placed 1000 box cars with the Pullman Car & Mfg. Corpn. Part of the cars will be built at Birmingham and the remainder at shops in Virginia. The Great Northern is now taking steel for its car repair program and the Illinois Central is specifying against its contract for car repair material. Kilgore, Tex., has ordered tanks calling for 5000 tons, and 200 tons of plates will be required for a tank at Two Rivers, Wis.

Reinforcing Bars

This market is enlivened by the prospects of more Sanitary District work and the impending purchase of bars needed for reconstructing the portion of the Chicago stock yards that recently burned. The Sanitary District will open bids June 21 on 1000 tons for a sewer and it is understood plans are about ready for a sewage treating plant that will require a very large tonnage. More than 1000 tons will be required at the stock yards.

Cast Iron Pipe

Prices are being advanced to $39 a ton, Birmingham, for 6-in. and larger diameters. The freight rate to Chicago is $8 a ton bringing the delivered price to $47 a ton. The 4-in. size carries a $3 a ton differential making the Chicago delivered price $50. PWA work is loosening up and sellers report more activity among the older projects. Madison, Wis., will buy 700 tons, and Aberdeen, S. D., has awarded a general contract which calls for 10,000 ft. of 16-in. pipe.

Scrap

The strike having become less of an immediate issue, there is more boldness on the part of scrap dealers in holding out for higher prices. Within the week heavy melting steel has been taken by mills at $9.75 to $10 a gross ton, delivered. The trade, looking back at events in recent days, has decided these are not good orders and it does not want more like them. The immediate supplies of heavy melting steel are not large and brokers are again looking for prices that will induce an inflow of scrap from territory surrounding Chicago. The Burlington is offering 3000 tons, including 1000 tons of heavy melting steel. Relaying rails, 60 lb. and heavier, are nominally priced at $18 to $20 a gross ton.

Market Tension Relieved In New York District



Calling Off of Strike Changes Attitude of Buyers—Cast Iron Pipe Advanced—Amended Code Still Perplexes Trade

NEW YORK, June 19.—The calling off of the steel strike has relieved the tension in the finished steel market. In certain grades of sheets and strip, however, mills have been forced to close their books to further specifications, having taken all the tonnage that they can roll before July 1. In most other products steel makers are still in a position to accept releases. Outside of the light-rolled products, June specifications are little, if any, better than those of May. In plates, shapes and bars there has been a slight reduction in shipping orders, but this loss has probably been offset by an increase in pipe releases. Export demand is without trend, some companies reporting a betterment in sales and others a decline. For a refinery to be built by the Standard Oil Co. of New Jersey at Aruba, an island off Venezuela, the Chicago Bridge & Iron Works has booked 555 tons of plate and structural steel work, while the National Tube Co. will supply 54 tons of tubes for heaters.

Cast-iron pipe prices were advanced $2 a ton on June 15 to $45 a ton, delivered New York, for 6-in. and larger, and $48 a ton, delivered, for 4-in.

With the steel strike averted, there is not likely to be an early test of the new steel code provision banning advances in prices once they are filed for a quarter. While it is understood that this was the intent of the framers of the amended code, the covering provision (Section 3, Schedule E) contains no express prohibition of advances. Such an interpretation of the clause can be obtained only by inference and there are many in the trade who believe the correct construction is still in doubt.

In a similar manner the last sentence of Section 8 of Schedule E in the amended code has brought out a difference of opinion. Although the spirit of this clause may have been to limit contract coverage to a definite maximum tonnage representing either all or a specified part of the consumer's requirements, that intent is not, it is contended, made clear by the letter of the clause. The provision reads as follows: "None of the members of the code shall make any contract for the sale of all or any part of the requirements of the other party to such contract for any product, unless the maximum quantity of such product to be delivered under such contract shall be specified therein." "Any part" of a consumer's requirements, it is argued, is not identical with any "definite" part. "Not less than 33 1/3 per cent of requirements" might qualify as "any" part and thereby make evasion of the spirit of the provision possible.

Pig Iron

Sales made last week totaled about 350 tons for June shipment, as compared with 950 tons in the preceding week and 1400 tons booked a fortnight ago. Sellers here believe that second quarter shipments will average over 80 per cent of the tonnage under contract, and aggregate June deliveries will probably exceed those for any previous month this year. Most melters do not need the iron but are making releases and stocking against third quarter requirements. Consequently, business after July 1 will be mostly carlots for immediate shipment, and the aggregate bookings for this district will probably be quite light until the latter part of the quarter.

Cast Iron Pipe

Prices in New York have been advanced $2 a ton and are now $45 and $48 for 6-in. and larger and 4-in. respectively for Class "B" grade. What little business there is in this territory is financed mostly by Federal funds. The only recent award of note consisted of two lots of 200 tons each on which the United States Pipe & Foundry Co. and Donaldson Iron Co. were low bidders.

Reinforcing Steel

Pending bar projects are in reduced volume but about 1100 tons of mesh for highway work in New York State will probably be let within the next week. Concrete Steel Co. has been awarded 400 tons for Section No. 3 of the Philadelphia-Camden bridge subway approach, 300 tons for a bridge at Newburyport, Mass., and 160 tons for a grade separation at Queens, N. Y. In addition the Austin Co. has awarded 450 tons to Joseph T. Ryerson & Son, Inc., for a glue factory at Woburn, Mass. Capital Steel Co., Brooklyn, bid on 1000 tons of rods for miscellaneous work in New York at a price $2 a ton under that established by the code. Other distributers have filed complaints at Washington but no action has yet been taken.

Scrap

The partial subsidence of strike threats is reflected in a greatly improved undertone in Eastern scrap markets, but prices have not as yet moved upward. In this buying market, No. 2 steel is very active at Jersey City, N. J., where car loadings are being made at $6.75 to $7 a ton for delivery to Conshohocken and Coatesville, Pa. A small quantity of No. 1 steel is being shipped to Pencoyd, Pa., and Claymont, Del., at $10 a ton delivered. Some heavy breakable cast is going to Coatesville and Harrisburg, Pa., at $10.50 to $11 a ton, delivered, and a parcel of rails purchased last week in New York established the price $1 down at $8.50 a ton. Local brokers continue to ship abroad on old contracts but new business is very light. Japanese consumers are out of the market at present and fresh European business consists mostly of specialties. However, it is expected that export backlogs will increase materially if domestic prices show a definite upward trend.

Business Activity in May Again Advanced

BUSINESS activity showed moderate improvement in May, although the slowing up of the rate of recovery observed early in April was extended into recent weeks, according to the monthly report of the Conference of Statisticians in Industry of the National Industrial Conference Board. Commodity prices in the main showed strength in the last six weeks although movements were selective. Security prices lost ground in May but resisted downward tendencies in the first half of June.

Productive activity showed a net gain during the month. While declines of a more than seasonal nature were recorded in the automobile and textile industries, advances in other major fields of production effected a general net advance. Building and engineering construction awards advanced counter to seasonal expectations. Steel and iron production, in continuing upward in May when a decline would have been normal, continued the counter-to-seasonal movement experienced in April. Electric power output fell off slightly in May but less than generally expected during the month. Bituminous coal production advanced sharply, and, in doing so, partially compensated for the unseasonal decline in output in April.

Production Holds at 63 Per Cent at Cleveland



Mills Are Heavily Booked and Will Be Taxed to Ship All the Steel on Order Before June 30 — Pig Iron Shipments Increase

CLEVELAND, June 19.—With nearly all of the tonnage in finished steel to be shipped in June now on the mill books, activity in the sales department has subsided, but production departments will be taxed to ship all the steel on order before the deadline date, June 30. Releases the past week have been largely in cleaning up odds and ends and have not involved large lots. Mills are still taking releases for such products and sizes as they can fit into their rolling schedules this month in bars, plates and shapes and hot-rolled sheets and strip. No more orders are being taken for cold-rolled material in sheets and strip. Some buyers had to go to different sources of supply in order to find a mill that could take their belated orders.

Ingot output in the Cleveland-Lorain territory is unchanged this week at 63 per cent of capacity. One open-hearth furnace was taken off in Lorain but this was offset by the addition of another open-hearth in Cleveland.

With heavy releases against contracts in May, the volume of specifications in June will not be as heavy as during last month. While some consumers are allowing a portion of their tonnage to lapse, buyers as a rule, spurred by the saving in the price of steel taken out this month and wishing to protect themselves against a shortage in case of labor troubles in the steel industry, have ordered out about all the steel covered by their contracts. Some consumers are accumulating good stocks of material in such sizes as they are certain to need. Contracting for the third quarter has increased slightly. However, consumers find little incentive to make commitments for the quarter and mills are making little effort to close contracts.

Pig Iron

Nearly all the iron covered by second quarter contracts will be taken out according to present indications. Those buyers who do not have early need for their iron evidently feel justified in putting iron in stock at a saving of $1 a ton from what they would have to pay under the present price schedule. June shipments from some furnaces will be about double those in May.

Iron Ore

Consumption of Lake Superior ore during May amounted to 2,957,934 tons, a gain of 487,813 tons over April. Furnace stocks June 1 amounted to 21,218,303 tons. Ore at furnaces and on Lake Erie docks on that date amounted to 25,598,098 tons, as compared with 28,314,417 tons on the same date last year. Central district furnaces in May consumed 1,613,869 tons, a gain of 219,088 tons. Lake front furnaces used 1,333,583 tons, a gain of 263,135 tons. Eastern furnaces melted 5953 tons, a gain of 1220 tons, and all-rail furnaces used 4529 tons, a gain of 4370 tons. There were 104 furnaces using Lake ore in blast June 1, a gain of seven for the month.

Sheets

Releases have sharply declined, as consumers generally have ordered all the sheets they will take against second quarter contracts. Some of the mills are still able to accept orders for hot-rolled sheets for June delivery and others, while crowded, expect to be able to ship by June 30 all orders on their books for this month's delivery. A few third quarter contracts have been closed, and some small-lot orders have been placed for July shipment.

Strip Steel

Several of the mills have discontinued taking specifications for the second quarter and some will have difficulty in shipping by June 30 all the cold-rolled strip they have orders for. The automotive industry has issued releases for virtually all the strip due on contracts. This is expected to be sufficient for requirements at least through July. A limited number of third quarter contracts have been closed.

Bars, Plates and Shapes

Activity in the structural field was stimulated the past week by several bridge awards. Ohio placed two highway bridges requiring 800 tons of fabricated steel and the Erie Railroad awarded two highway bridges taking 1200 tons. The Ohio State Highway Department has decided to rebuild the Lorain Avenue bridge, Cleveland, and to construct this of steel. From 1000 to 2000 tons will be required. While mills are still accepting specifications for bars, plates and shapes against second quarter contracts, releases have declined as consumers with few exceptions have ordered out all the steel they will take against their old contracts.

Wire Products

Jobbers have specified about all the tonnage covered by the second quarter contracts. Releases against manufacturers' wire have not been up to expectations, which is attributed to the slowing down of the automotive industry.

Bolts and Nuts

Present prices are expected to be reaffirmed for the third quarter, although manufacturers will not make a definite decision until near the end of the week. Demand has tapered off.

Scrap

The market remains inactive. Mills have good stocks and little scrap remains to be shipped against outstanding contracts. No new buying is expected until these stocks are materially reduced. While quotations are nominal, prices appear to be holding steady and dealers predict that they will go no lower.

Private Building Awards Increase

CONTRACTS let for all classes of construction during May in the 37 Eastern States were 2 per cent larger in dollar volume than the April total, according to F. W. Dodge Corpn. At the same time the contract total of $134,445,700 was substantially above the contract total of $77,171,700 reported for May, 1933.

Privately financed contracts amounted to $62,846,500, which is the largest private contract total since June of last year. It was 12 per cent over April and 17 per cent over May of last year. It should be noted that the May increase in privately financed contracts was entirely due to the inclusion of one large new building project in connection with the development of Rockefeller Center, New York.

Detroit Scrap Unchanged

DETROIT, June 19.—Although the local scrap market has shown a slight recovery in sentiment, the volume of business still is of negligible proportions. Many steel mills continue to hold up releases on current contract tonnages. The Detroit steel plant, however, is taking in some scrap. Prices have not changed the past week.

Mills Again Raise Output In Eastern Pennsylvania



Necessity for Completing Second Quarter Shipments by June 30 Advances Steel Production Rate to 47 Per Cent of Capacity

PHILADELPHIA, June 19.—Mills in this district are still accepting specifications on some products for shipment before June 30, and releases last week were sufficiently heavy to necessitate the lighting of additional open-hearth furnaces. The current steel making rate is therefore estimated at 47 per cent of capacity, although orders have fallen off in the last day or two, and the last minute rush seems to be about ended.

Just how much of an effect the postponement of the projected steel strike has had upon buyers is difficult to determine, but mills in the East were not seriously threatened and steel consumers had been pressing for shipments only in occasional instances. A walkout in July would be largely ineffective as steel users generally will be well supplied by the end of the month.

Forward contracting for finished steel products is negligible. With price advances during the quarter forbidden under the amended code and consumers protected against declines, little incentive to cover advance requirements remains. The Pennsylvania Railroad recently opened bids on approximately 5000 tons of bars, plates, shapes and sheets for its miscellaneous third quarter needs, but has taken no action as yet and will probably place a small contract with only one mill in order to satisfy the requirements of the Clayton Act. Otherwise railroad activity is lacking. The Reading has not yet bought track accessories to accompany its recent rail purchase.

Pig Iron

Shipments during June are likely to be about three times as large as the average for the first five months of the year. However, this will leave consumers fully supplied so far as July is concerned and scarcely any buying is expected next month. The foundry melt in the district shows no marked change, but naturally is not increasing at this season of the year. Makers of cast iron pipe are not running as well as they were a month ago, but are booking PWA jobs rather regularly.

Bars, Plates and Shapes

Producers of heavy hot-rolled products can still accommodate specifications against old contracts for shipment before June 30, but bar and plate mill schedules are fairly satisfactory for the next 10 days. No new business of importance is being booked and little third quarter contracting is expected. The Pennsylvania Railroad has taken bids on its third quarter requirements, but is not expected to award contracts in the usual way. Movement of plates and shapes to shipbuilders is maintained at a good rate. Activity is light in the structural steel market. The McClintic-Marshall Corpn. has booked 750 tons for a State highway bridge in Bucks County, Pa., and the Belmont Iron Works has taken 400 tons for a factory addition for the Container Corpn. of America in Philadelphia. A junior high school at Reading, Pa., will take a round tonnage of fabricated steel.

Sheets

Mills have closed their books for the remainder of this quarter and will be engaged at practical capacity for the next 10 days. A little tonnage has

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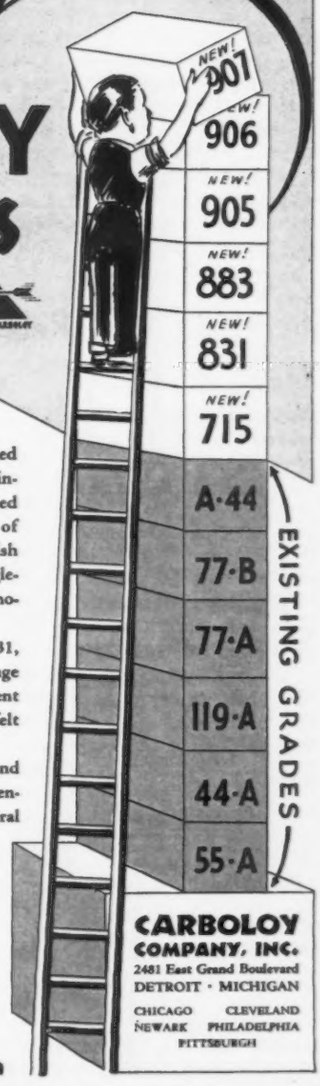
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been booked at the currently quoted prices for shipment during July, but most buyers have covered their needs for at least a month in advance. Stove makers are beginning to show interest in their future requirements, but radio manufacturers have not yet gaged the extent of their fall activity.

Warehouse Business

Sales of steel products out of warehouse have fallen off in the last few days, but business in the first half of the month was sufficiently heavy to promise a June total about equal to May. Prices are unchanged.

Imports

The following iron and steel imports were received here last week: 624 tons of pig iron from British India; 350 tons of ferromanganese from Norway and 100 tons of the same product from Germany; 101 tons of sponge iron and 8 tons of cold-drawn steel wire from Sweden; and 28 tons of steel bands, 28 tons of steel bars and 10 tons of structural shapes from Belgium.

Scrap

The market is rather quiet, but prices remain firm. No. 2 heavy melting steel is particularly strong because of the activity of brokers in covering old orders. They are paying $9 to $9.25 rather freely and a sale into consumption at $9.50 is reported to have been made. No. 1 steel is still quotable at $10.50. The export movement continues unabated. A higher market on stove plate is likely to develop during the week.

Sheet and Wire Releases Heavy in South

BIRMINGHAM, June 19.—The current pig iron market is passive but there has been a steady movement of tonnage against contracts placed at lower prices back in April. This activity is expected to increase during the next ten days with the June 30 deadline close at hand. A large part of the present movement is going into stocks and many foundries will have ample supplies for some time to come.

The present base quotation is still $14.50, both for spot and third quarter iron. Furnace operations continue unchanged with ten active stacks.

Steel

Specifications are keeping sheet and wire production at a high point. One manufacturer has now closed down on additional orders for delivery before June 30. The other producer, with large stocks, will be able to handle all orders up to within a day or so of the deadline. Other lines are not so active. With the strike postponed, buyers can plan in a more orderly manner. Some jobbers and buyers rushed in and stocked up early in the month. Others wanted to wait as long as possible and took a chance on the strike. There were also manufacturers who delayed their specifications since their business would be directly affected by a steel tie-up and they did not wish to be saddled with large stocks.

Fifteen open-hearths operated last week and no change is contemplated for this week.

Heavy Specifying At St. Louis

ST. LOUIS, June 19.—Specifications for sheets against contracts expiring June 30 continue to reach the mills in heavy volume. There has also been a heavy movement of structural steel against contracts. Wire products are still quiet, as a result of uncertainty over farmer purchasing power. The market on bolts and nuts is firming up. Highway projects in Missouri, Illinois and Arkansas are being let in increasing number. The St. Louis Structural Steel Co. was awarded 700 tons for a bridge at Newport, Ark.

Shipments of pig iron continue at a lively rate, melters being eager to clean up their contracts made at $1 a ton less than the present price before the end of the month. This seems to forecast a small movement in July, unless there should be a sharp increase in the melt. Meanwhile melt is holding up well, being especially heavy in the stove industry. Orders for agricultural implements and stoves for use on farms which were canceled on account of the drouth are being reinstated, now that that situation has been improved by rains.

Scrap prices are unchanged. The market has been at a standstill because of the strike threat.

Large Pipe Line Placed on Coast

SAN FRANCISCO, June 18.—San Francisco held the spotlight on the Coast when bids were taken on two major pipeline projects. The award of 17,759 tons of plates for the Bay Crossing pipe line was the outstanding letting of the week. Western Pipe & Steel Co. booked 12,759 tons while American Concrete & Steel Pipe Co. took 5000 tons. The former company was also awarded 241 tons of miscellaneous steel. Bids were taken at San Francisco on 240,000 ft. of 6 to 16-in. cast iron pipe on which it is reported that United States Cast Iron Pipe Co. is low on 5700 tons, American Cast Iron Pipe Co. low on 1500 tons and National Cast Iron Pipe Co. low on 2100 tons. Awards are expected shortly.

Among the few inquiries listed during the week were two calling for major tonnages. The official date for bids was set for July 6 for the Bonneville dam power house substructure and navigation lock to be built east of Portland, Ore. Specifications call for 10,550 tons of reinforcing bars, 1577 tons of structural steel, 280 tons of miscellaneous steel and 111 tons of cast iron pipe. At Los Angeles, bids are to be taken July 26 by the Bureau of Reclamation for the construction of the Parker dam on the Colorado River. Preliminary estimates show that approximately 1000 tons of reinforcing bars, 2000 tons of structural steel and plates and 500 tons of miscellaneous steel will be required.

Other major tonnages booked during the week were for 2450 tons of structural steel and 6000 tons of reinforcing bars for the Bonneville spillway dam. The former went to McClintic-Marshall Corpn., while the Pacific Coast Steel Corpn. booked the latter. Approximately 1000 tons of sheet piling is yet to be placed for this project.

Lettings during the week totaled 4403 tons of structural steel, 7146 tons of reinforcing bars and 17,759 tons of plates.

American Steel and Wire Employees Vote

EMPLOYEES of the works of the American Steel & Wire Co. voted June 15 to select 164 employees' representatives. This vote indicated that the employees are almost unanimous in favor of the employees' representation plan.

The vote by districts was: Cleveland, 5389 votes cast or 94 per cent of employees eligible to vote; Pittsburgh district, 4490 votes cast or 93.9 per cent of those eligible to vote; Chicago district, 2954 votes cast or 96.7 per cent of those eligible to vote; Worcester works, 4430 votes cast or 98.3 per cent of those eligible to vote; Duluth works, 1059 votes or 96.7 per cent of those eligible to vote. The total company vote was 18,352 votes cast, or 95.5 per cent of employees eligible to vote.

Wisconsin Motor Co., Milwaukee, manufacturer of gasoline engines for automobiles, trucks and commercial applications, has established a new division for the manufacture of Diesel engines, development of which has been under way for some time under the direction of M. J. Murphy, formerly chief engineer of the Caterpillar Tractor Co., Peoria, Ill. Regular production will start in about 60 days. The line will be built in a range of 8 to 150 hp., in one to six-cylinder types. Several new features in Diesel design are incorporated.

Increase in Pipe Demand Adds Support to Valley Mill Operations

YOUNGSTOWN, June 19. — The postponement of the strike threat until June 30 has assured Valley steel producers of an even chance to produce and ship all June tonnage specified against second quarter contracts. Although no general tie-up in the district had been expected if the Amalgamated had made good its threat to strike on June 16, steel makers here are relieved that labor problems have been deferred temporarily. At only one or two small mills, according to reports, would a June 16 walkout have threatened production seriously. Workers in the Valleys have manifested largely the same temper as in other steel-producing areas, with a majority willing to work in spite of the strike ultimatum of the Amalgamated.

With only two weeks remaining in the quarter, books are generally closed to acceptance of additional second quarter specifications. Possible exceptions are soft steel merchant bars and tin plate, the latter product not being governed by the code deadline for deliveries on June 30. Sheet and strip mills will probably be taxed rather severely until the final day to dispatch committed tonnage. Some units in these groups are booked solidly for the rest of June. All mills at the Sharon Steel Hoop Co. operations were scheduled to go on yesterday. A heavy schedule is also planned for this week by the American Sheet & Tin Plate Co. Farrell plant, which intends to operate 30 mills for nine turns. The Mercer works of that company will operate eight mills 15 turns.

Pipe mills are perhaps enjoying the heaviest business in many months. A heavier movement of standard pipe out of jobber stocks, mostly for public works construction, has sustained production of this grade which had been neglected for some time previous to the recent pickup. Although the increased demand is partly traceable to covering against the higher prices now in effect, the spring activity in construction also has been of timely benefit to pipe mills. An increased amount of drilling activity in the California and east Texas oil fields has driven in a substantial tonnage of oil country goods. Despite the fact the prices on this group have also been advanced, some very urgent orders at the advanced quotations have been placed, indicating that a genuine demand exists.

The aftermath of the unusually heavy second quarter anticipatory covering will probably be felt keenly after the turn of the quarter. Very little third quarter tonnage has been booked thus far, and mills can not accurately predict the probable rate of operations next month. Some steel tonnage, such as railroad tie plates and spikes and other products for identified projects not governed by the code shipping provisions, will tend to offset a drastically sharp decline in operations after the first of the month. One producer does not expect to operate at more than 50 per cent at the outset of the new quarter, and the chances are that, unless present slim backlogs are noticeably augmented, the trend will be down from that point for the greater part of July. Immediate open-hearth activity is very well sustained, with at least 50 open-hearths scheduled to begin this week, out of a total of 83 for the district. Some capacity may be taken off, however, at mid-week. Bessemer capacity is unusually well engaged.

Although operations next month may not be so favorable in comparison to present activity, producers will begin to benefit by the higher prices to become generally applicable on July 1. Already some third quarter tonnage has been booked and, though not large in volume, it indicates that consumers are not resistant to the higher prices so long as the need for the steel definitely exists.

Final releases on second quarter pig iron contracts are fairly heavy, but there is some disposition on the part of small users, who have been cramped by capital limitations, to seek cancellation of unshipped tonnage. Most melters, however, are specifying to the limit, and shipments this month are expected to run heavier than in any previous month this year.

Scrap is still affected by suspensions at most mills, with one large consumer cleaned up on outstanding orders. Further buying hinges upon the behavior of prices and the outlook for third quarter, which at present is obscured by unsettled labor problems and an indefinite gage of sentiment in consuming industries. Prices for scrap have remained more or less stationary in the past fortnight, with practically no transactions to clarify the market. No. 1 heavy melting steel is largely nominal at $11.50 to $12. Compressed sheets are weak.

Wisconsin Employment Insurance Effective

COMPULSORY employment insurance will become effective in Wisconsin on July 1, the State Industrial Commission having found that employers of the State fell short of the 139,000 quota of employees required to be under voluntary insurance plans if imposition of the compulsory plan was to be prevented.

Under provisions of the act, collections of contributions from employers would begin if a survey by the commission of employment conditions as of May 18 showed that less than 139,000 quota were covered by voluntary insurance plans. The survey showed that while 376 employers had proposed voluntary compensation plans which merited approval by the commission, the total number of employees was less than 50,000. Moreover, relatively few of the employers whose plans for employment insurance were approved placed them in effect. It was estimated that the total number of employees actually under voluntary plans is approximately 10,000.

Although collections of contributions from employers are to begin July 1, no benefit payments are to be made until a full year expires, in order to allow time for funds to accumulate.

"It is evident," a statement by the commission said, "that a vast majority of the employers of Wisconsin, by not filing voluntary plans, desired that all of the employers of the State be subject to the provisions of the law, and in fact many employers who did file voluntary plans indicated that they did not want their voluntary action to exempt other employers. . . . The large majority of those employers who will be subject to the law will doubtless prefer to accept and operate under the standard contribution and benefit provisions of the act. . . . This may well prove to be both the simplest and the cheapest way of handling the problem. Those employers establishing exempted plans will probably be subject to heavier administrative expense charges than those who simply comply with the minimum provisions of the law and deposit their funds with the State."

The commission said that definite regulations for the making of contributions will be issued for the guidance of employers by July 1.

The standard plan requires employers to contribute 2 per cent of the total yearly payroll of workers who are eligible for benefits. When reserves reach $55 for each employee after two years, the contributions may be reduced to 1 per cent, at which rate they continue until a reserve of $75 per employee is accumulated. Voluntary plans permit employers to set up their own reserves or guarantee 42 weeks of employment yearly. All employers who engage 10 or more workers for 18 or more weeks a year are required to adopt one of the plans.

Tin Market Very Active as London Dealers Buy Local Resale Offerings

Spelter Sales Total 3200 Tons, Mostly at 4.25c.—Copper Quiet Here and Abroad—Lead Market Continues Steady

NEW YORK, June 19.—The current electrolytic copper market is enlivened only by a few daily transactions with subsidiary companies. The open market is naturally lifeless following the heavy buying of two weeks ago, and operators are of the opinion that little activity will appear for several weeks. The code-established price is unaltered at 9c. a lb. for electrolytic and arsenical Lake metal, delivered Connecticut valley, and 9.12½c. a lb. for prime Lake metal at Eastern points. An important ruling of the code authority is that the ban on non-Blue Eagle copper has been extended to Aug. 1. It is altogether likely that the ban will be made permanent. Copper officials have stated that 10c. is a logical price for metal, but it is improbable that that level will be reached in the near future unless the basic condition of the industry rapidly improves. The foreign market has declined to 8.05c. a lb., c.i.f. usual Continental ports, mostly due to the pressure of excess metal which previously had found an outlet in Germany. Business abroad has been generally quiet, and the price oddly enough has not shown much tendency to react to changes in this country.

Tin

The New York market was the cheapest place in the world to buy tin last week as Straits metal declined to 50.25c. a lb. Presumably the offerings were resale parcels being liquidated by speculators, as importers were busily making arbitrage purchases and buying against future sales made earlier in the month. However, practically no American consuming demand was evidenced despite the low price and the intense dealer activity. Evidently no inducement is sufficient to arouse domestic interest, thereby indicating that users are fairly well covered or expect a serious decline in activity in the near future. Tin consumption in the United States during the first quarter amounted to 12,280 tons against 9730 tons for the same period in 1933. The increase was primarily due to higher tin plate operations.

Lead

Moderate day-to-day buying continues to support this market and the price is consequently steady and slightly strong at 4c. a lb., New York. Consumers have covered practically all their June requirements and about 12,000 tons has been booked for July shipment. Battery makers continue to be quite active, the white lead plants are demanding good quantities of metal, and the outlook for the cable industry is more encouraging. Therefore the trade does not expect any appreciable decline in total sales during the summer months. Lead at 4c. is comparatively cheap and it is generally expected that prices will be advanced during the third quarter. Such advances, however, will depend on a continued consumer support of the market as well as an improvement in the statistical position.

Zinc

Late last week two sellers dropped the Prime Western price 5 points to 4.20c. a lb., East St. Louis, in an effort to attract more business. Other sellers gradually followed suit on competitive tonnages, and the market is now rather generally quoted at the lower figure. The demands from the galvanizing industry have continued in fair volume, and the outwardly quiet condition of the market was belied somewhat last week by sales of 3200 tons for prompt and September deliveries, mostly at 4.25c. a lb. The entire trade is naturally not satisfied with the current 4.20c. quotation, and it is probable that advances would be made should any price strength for concentrates appear in the Tri-State district. Joplin ore has declined to $25 and $26 a ton for flotation and prime grades respectively, and several small properties and tailing mills have stopped production as the current low market price makes it unprofitable for them to operate. The output last week of 7450 tons again exceeded demands and visible bin stocks rose over 1000 tons to 19,000 tons. It is expected that mines will again reach some agreement to reduce operations in an attempt to lower the stocks available and thereby strengthen the price.

During May leading Prime Western sellers booked 6206 tons for delivery during the month at an average weighted price of 4.351c. a lb., East St. Louis. There were sales of 4541 tons for subsequent delivery during the same month at an average price of 4.334c. a lb. These quotations are slightly higher than those which prevailed during the preceding month.

The Week's Prices. Cents Per Pound for Early Delivery

	June 13	June 14	June 15	June 16	June 18	June 19
Electrolytic copper, N. Y.*‡	8.587	8.75	8.75	8.75	8.75	8.75
Lake copper, Eastern delivery*	8.962	9.12½	9.12½	9.12½	9.12½	9.12½
Straits tin, Spot, N. Y.	51.50	50.62½	50.50	....	50.25	51.25
Zinc, East St. Louis	4.20	4.20	4.20	4.20	4.20	4.20
Zinc, New York	4.55	4.55	4.55	4.55	4.55	4.55
Lead, St. Louis	3.85	3.85	3.85	3.85	3.85	3.85
Lead, New York	4.00	4.00	4.00	4.00	4.00	4.00

*Blue Eagle copper. ‡Refinery; price ¼c. higher in Connecticut Valley.

Quotations below cover wholesale lots, f.o.b. New York.

Aluminum, 98-99 per cent, 22.90c. a lb.
Aluminum, remelt, No. 12 (grade 3), 13.50c. a lb., average for week.
Nickel electrolytic cathode, 35c. a lb.; shot and ingot, remelt electro, 36c. a lb.
Antimony, 7.90c. a lb. Quicksilver, per flask of 76 lb., $75.
Brass ingots, 85-5-5-5, 8.75c. a lb.

From New York Warehouse

Delivered Prices, Base per Lb.

Tin, Straits pig	53.00c. to 54.00c.
Tin, bar	55.00c. to 56.00c.
Copper, Lake	10.25c. to 11.00c.
Copper, electrolytic	10.00c. to 10.50c.
Copper, castings	9.75c. to 10.75c.
*Copper sheets, hot-rolled	16.00c.
*High brass sheets	14.50c.
*Seamless brass tubes	17.00c.
*Seamless copper tubes	17.25c.
*Brass rods	13.00c.
Zinc, slabs	5.75c. to 6.75c.
Zinc sheets (No. 9), casks, 1200 lb. and over	10.25c.
Lead, American pig	4.75c. to 5.75c.
Lead, bar	5.75c. to 6.75c.
Lead, sheets	7.75c.
Antimony, Asiatic	9.75c.
Alum., virgin, 99 per cent, plus	23.30c.
Alum., No. 1 for remelting, 98 to 99 per cent	18.00c. to 19.00c.
Solder, ½ and ½	32.50c. to 33.50c.
Babbitt metal, commercial grades	25.00c. to 60.00c.

*These prices are also for delivery from Chicago and Cleveland warehouses.

From Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig	53.75c.
Tin, bar	55.00c
Copper, Lake	10.00c.
Copper, electrolytic	10.00c.
Copper, castings	9.75c.
Zinc, slab	5.75c. to 6.00c.
Lead, American pig	5.00c. to 5.25c.
Lead, bar	8.00c.
Antimony, Asiatic	9.00c.
Babbitt metal, medium grade	18.50c.
Babbitt metal, high grade	58.00c.
Solder, ½ and ½	33.00c.

Old Metals, Per Lb., New York

Buying prices are paid by dealers for miscellaneous lots from smaller accumulators, and selling prices are those charged to consumers after the metal has been prepared for their uses. (All prices are nominal.)

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible	6.75c.	7.50c.
Copper, hvy. and wire	6.50c.	7.25c.
Copper, light and bottoms	5.50c.	6.50c.
Brass, heavy	3.62½c.	4.37½c.
Brass, light	3.12½c.	3.75c.
Hvy. machine composition	5.25c.	6.125c.
No. 1 yel. brass turnings	4.50c.	5.25c.
No. 1 red brass or compos. turnings	4.37½c.	5.37½c.
Lead, heavy	3.12½c.	3.62½c.
Zinc	2.50c.	3.125c.
Cast aluminum	10.00c.	11.75c.
Sheet aluminum	12.25c.	13.50c.

Plant Expansion and Equipment Buying

◀ PACIFIC COAST ▶

Bureau of Yards and Docks, Navy Department, Washington, asks bids until July 11 for seven new hangars with repair and reconditioning facilities at Naval Operating Base, Air Station, San Diego, Cal. (Specification 7295-A).

Martin J. Rist, Phelan Building, San Francisco, architect, has plans for new multi-unit winery at Modesto, Cal., for company whose name is temporarily withheld. Cost about $70,000 with equipment.

O. C. Field Gasoline Co., Huntington Beach, Cal., plans rebuilding gasoline refinery recently destroyed by fire. Loss over $150,000 with equipment.

George Watson, 613 East LaCrosse Avenue, Spokane, Wash., has let general contract to A. D. Armand, 920 West Carlisle Street, for new one-story machine shop.

Washington Wineries, Inc., Sumner, Wash., Robert J. Rayson, president, recently organized, has engaged Mock & Morrison, Perkins Building, Tacoma, Wash., architects, to draw plans for new multi-unit winery, including power house and machine shop. Cost about $110,000 with equipment.

Independent Ice & Cold Storage Co., 511 Middle Waterway, Tacoma, Wash., has let general contract to N. P. Fisher, Tacoma, for new multi-story brewery in McKinley Hill district, with power house. Cost over $100,000 with machinery. Company has organized a subsidiary, Independent Brewing Co., to carry out project. Richard Ullrich, Smith Tower Annex, Seattle, is architect.

Nevada State Gold Mines Co., Lovelock, Nev., Stuart L. Williams, secretary and treasurer, is arranging for stock issue to total $400,000, part of fund to be used for expansion and improvements.

Lucca Olive Oil Co., Lindsay, Cal., is planning to rebuild part of works recently destroyed by fire. Loss over $100,000 with equipment.

Sidney Johnson, Kingsburg, Cal., is at head of project to erect a winery, consisting of group of one-story units, with power house, machine shop and other mechanical departments. Company will be organized to operate plant. Cost over $300,000 with equipment. J. C. Walling, Kingsburg, is interested in project.

◀ FOREIGN ▶

Johnson & Johnson, Inc., New Brunswick, N. J., Robert W. Johnson, president, manufacturer of drugs, surgical supplies, etc., has authorized new plant at Bombay, India, consisting of main multi-story unit with smaller structures. Cost in excess of $400,000 with equipment. Superstructure is scheduled to begin within six months under supervision of Walter J. Metts, general superintendent at New Brunswick plant, who will go to Bombay.

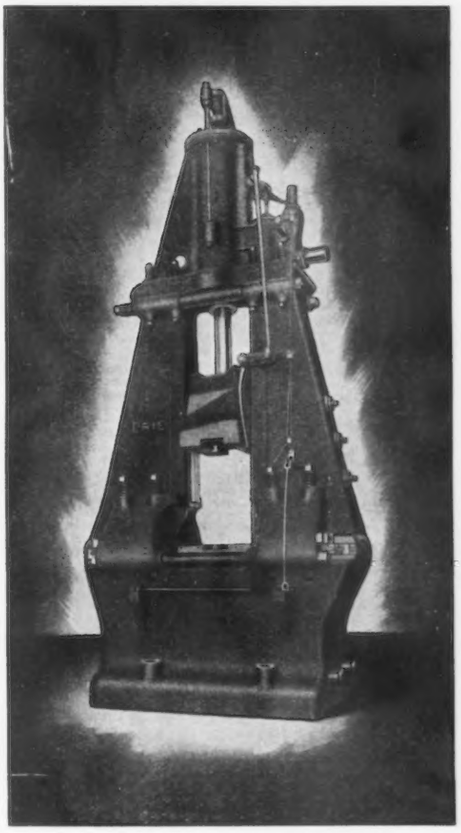
Ministry of Transportation, Government of Peru, Lima, plans new Federal airport near city, to include hangars, repair and reconditioning shops, oil storage and distribution plant and other field units. Present Federal airport at Las Palmas will be developed exclusively for military service in future. Cost over $500,000 with equipment.

Compania Papelera Nacional, Havana, Cuba, plans rebuilding part of paper mill at Marianao, a suburb of city, recently destroyed by fire. Loss about $650,000 with machinery.

Compania Industrial Mexicana, Mexico, D.F., care of A. L. Mailman, Pal Blade Co., Ltd., Montreal, Que., manufacturer of safety razor blades, recently chartered with capital of 500,000 pesos (about $140,000), as subsidiary of latter organization, plans early establishment of new plant at Mexico for manufacture of products noted. Initial unit will cost over $75,000 with equipment.

Town Council, Worcester, South Africa, plans extensions and improvements in municipal electric light and power plant, including new generating machinery and accessory equipment. Cost about $100,000.

Where is the Neck of the Bottle?



There is a new bottle neck in your production. Perhaps you haven't noticed it yet, but you will feel it pinch just as inevitably as you will see your business improve.

Neither you nor any other shop has made any new hammermen the last few years. There has been the normal drift to other jobs as well as the abnormal shifting due to conditions. Some of your men are gas station attendants or are running milk routes—and they won't come back. To top it all every man's hours of employment per week are limited.

Under such conditions you can't increase production by putting on another shift, or by doubling up crews on your hammers. The only solution is to get the most production out of every hour that is worked, and the only way to do this is to give your men the very best tools available, ERIE drop hammers and ERIE trimming presses.

Replace your obsolete equipment with these modern machines. They are the answer to increased production with limited man hours. They are faster; they'll give you more production per hour. They are trouble free; you'll have less down time and more productive hours per day.

ERIE FOUNDRY COMPANY
ERIE, PENNA., U. S. A.

DETROIT 335 CURTIS BLDG. INDIANAPOLIS 335 POSTAL STATION BLDG.
CHICAGO 549 WASHINGTON BLVD PARIS, FRANCE 8 RUE DE ROCROY

ERIE

Railroad Equipment

Belt Railway of Chicago has purchased two 100-ton Diesel-electric locomotives, one each from American Locomotive Co. and Ingersoll-Rand Co.

Wheeling & Lake Erie is inquiring for four locomotives.

Boston & Maine has awarded a three-car stainless steel articulated passenger train to Edward G. Budd Mfg. Co., Philadelphia; power plant to be furnished by Winton Engine Co., Cleveland.

Illinois Central has obtained a PWA loan to build a streamlined passenger train, and to purchase 11 Diesel-electric locomotives for switching service along the Lake front in downtown Chicago.

Seaboard Air Line has ordered 1000 box cars from Pullman Car & Mfg. Corpn.

Panama Canal, C. Z., 1450 tons, Schedule Rails 2967; bids under advisement.

Foundry Equipment Orders in May

THE index of net orders for foundry equipment during May, 21 members reporting, was 66.5 as compared with 67.8 for April and with 25.6 for May last year, according to the monthly report of the Foundry Equipment Manufacturers Association.

Prices of Finished Steel and Iron Products

BARS, PLATES, SHAPES

Iron and Steel Bars

	Soft Steel	*Base per* **Lb.**
F.o.b.	Pittsburgh	1.90c.
F.o.b.	Chicago	1.95c.
F.o.b.	Gary	1.95c.
F.o.b.	Duluth	2.10c.
Del'd	Detroit	2.05c.
F.o.b.	Cleveland	1.95c.
F.o.b.	Buffalo	2.00c.
Del'd	Philadelphia	2.19c.
Del'd	New York	2.25c.
F.o.b.	Birmingham	2.05c.
F.o.b.	cars dock Gulf ports	2.30c.
F.o.b.	cars dock Pacific ports	2.45c.

Rail Steel

(For merchant trade)

F.o.b.	Pittsburgh	1.80c.
F.o.b.	Chicago	1.85c.
F.o.b.	Gary	1.85c.
F.o.b.	Moline, Ill.	1.85c.
F.o.b.	Cleveland	1.85c.
F.o.b.	Buffalo	1.90c.
F.o.b.	Birmingham	1.95c.
F.o.b.	cars dock Gulf ports	2.20c.
F.o.b.	cars dock Pacific ports	2.35c.

Billet Steel Reinforcing

(Straight lengths as quoted by distributers)

F.o.b.	Pittsburgh	2.05c.
F.o.b.	Chicago	2.10c.
F.o.b.	Gary	2.10c.
Del'd	Detroit	2.20c.
F.o.b.	Cleveland	2.10c.
F.o.b.	Youngstown	2.10c.
F.o.b.	Buffalo	2.10c.
F.o.b.	Birmingham	2.10c.
F.o.b.	cars dock Gulf ports	2.45c.
F.o.b.	cars dock Pacific ports	2.60c.

Rail Steel Reinforcing

(Straight lengths as quoted by distributers)

F.o.b.	Pittsburgh	1.90c.
F.o.b.	Chicago	1.95c.
F.o.b.	Gary	1.95c.
F.o.b.	Cleveland	1.95c.
F.o.b.	Youngstown	1.95c.
F.o.b.	Buffalo	1.95c.
F.o.b.	Birmingham	1.95c.
F.o.b.	cars dock Gulf ports	2.30c.
F.o.b.	cars dock Pacific ports	2.45c.

Iron

F.o.b.	Chicago	1.90c.
F.o.b.	Terre Haute, Ind.	1.85c.
F.o.b.	Reading, Pa.	
F.o.b.	Danville, Pa.	
F.o.b.	Berwick, Pa.	

Cold Finished Bars and Shafting*

	Base per Lb.
F.o.b. Pittsburgh	2.10c.
F.o.b. Chicago	2.15c.
F.o.b. Gary	2.15c.
F.o.b. Cleveland	2.15c.
F.o.b. Buffalo	2.20c.
Del'd Detroit	2.30c.
Del'd eastern Michigan	2.35c.

* In quantities of 10,000 to 19,999 lb.

Fence and Sign Posts

Angle Line Posts

	Base per Net Ton
F.o.b. Pittsburgh	$50.00
F.o.b. Chicago	50.00
F.o.b. Duluth	51.00
F.o.b. Cleveland	50.00
F.o.b. Birmingham	53.00
F.o.b. Houston	59.00
F.o.b. cars dock Pacific ports	67.00

Plates

	Base per Lb.
F.o.b. Pittsburgh	1.85c.
F.o.b. Chicago	1.90c.
F.o.b. Gary	1.90c.
Del'd Cleveland	2.055c.
F.o.b. Coatesville	1.95c.
F.o.b. Sparrows Points	1.95c.
Del'd Philadelphia	2.035c.
Del'd New York	2.13c.
F.o.b. Birm'ngham	2.00c.
F.o.b. cars dock Gulf ports	2.25c.
F.o.b. cars dock Pacific ports	2.40c.
Wrought iron plates, f.o.b. P'gh	3.00c.

Floor Plates

F.o.b.	Pittsburgh	3.35c.
F.o.b.	Chicago	3.40c.
F.o.b.	Coatesville	3.45c.
F.o.b.	cars dock Gulf ports	3.75c.
F.o.b.	cars dock Pacific ports	3.90c.

Structural Shapes

	Base per Lb.
F.o.b. Pittsburgh	1.85c.
F.o.b. Chicago	1.90c.
Del'd Cleveland	2.035c.
F.o.b. Buffalo	1.95c.
F.o.b. Bethlehem	1.95c.
Del'd Philadelphia	2.055c.
Del'd New York	2.1025c.
F.o.b. Birmingham (standard)	2.00c.
F.o.b. cars dock, Gulf ports	2.25c.
F.o.b. cars dock Pacific ports	2.40c.

Steel Sheet Piling

	Base per Lb.
F.o.b. Pittsburgh	2.15c.
F.o.b. Chicago	2.25c.
F.o.b. Buffalo	2.25c.
F.o.b. cars dock Gulf ports	2.60c.
F.o.b. cars dock Pacific ports	2.60c.

SHEETS, STRIP, TIN PLATE TERNE PLATE

Sheets

Hot Rolled

	Base per Lb.
No. 10, f.o.b. Pittsburgh	2.00c.
No. 10, f.o.b. Gary	2.10c.
No. 10, del'd Detroit	2.20c.
No. 10, del'd Phila.	2.29c.
No. 10, f.o.b. Birmingham	2.15c.
No. 10, f.o.b. dock cars Pacific ports	2.55c.

Hot-Rolled Annealed

No. 24, f.o.b. Pittsburgh	2.65c.
No. 24, f.o.b. Gary	2.75c.
No. 24, del'd Detroit	2.85c.
No. 24, del'd Phila.	2.91c.
No. 24, f.o.b. Birmingham	2.80c.
No. 24, f.o.b. dock cars Pacific ports	3.25c.
No. 24, wrought iron, Pittsburgh	4.30c.

Heavy Cold-Rolled

No. 10 gage, f.o.b. Pittsburgh	2.55c.
No. 10 gage, f.o.b. Gary	2.65c.
No. 10 gage, del'd Detroit	2.75c.
No. 10 gage, del'd Phila.	2.84c.
No. 10 gage, f.o.b. Birmingham	2.70c.
No. 10 gage, f.o.b. dock cars Pacific ports	3.15c.

Light Cold-Rolled

No. 20 gage, f.o.b. Pittsburgh	3.15c.
No. 20 gage, f.o.b. Gary	3.25c.
No. 20 gage, del'd Detroit	3.35c.
No. 20 gage, del'd Phila.	3.44c.
No. 20 gage, f.o.b. Birmingham	3.30c.
No. 20 gage, f.o.b. dock cars Pacific ports	3.70c.

Galvanized Sheets

No. 24, f.o.b. Pittsburgh	3.25c.
No. 24, f.o.b. Gary	3.35c.
No. 24, del'd Phila.	3.54c.
No. 24, f.o.b. Birmingham	3.40c.
No. 24, f.o.b. dock cars Pacific ports	3.85c.
No. 24, wrought iron, Pittsburgh	4.95c.

Long Ternes

No. 24, unassorted 8-lb. coating f.o.b. Pittsburgh	3.65c.
F.o.b. cars dock Pacific ports	4.35c.

Vitreous Enameling Stock

No. 20, f.o.b. Pittsburgh	3.20c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	2.85c.
No. 28, Gary	2.95c.
No. 28, cars dock, Pacific Coast ports	3.35c.

Tin Plate *Base per Box*

Standard cokes, f.o.b. P'gh district mill	$5.25
Standard cokes, f.o.b. Gary	5.35
Standard cokes, f.o.b. cars dock Pacific ports	5.90

Terne Plate

(F.o.b. Pittsburgh)

(Per Package, 20 x 28 in.)

8-lb. coating I.C.	$10.00
15-lb. coating I.C.	12.00
20-lb. coating I.C.	13.00
25-lb. coating I.C.	14.00
30-lb. coating I.C.	15.25
40-lb. coating I.C.	17.50

Hot-Rolled Hoops, Bands, Strips and Flats under ¼ In.

	Base per Lb.
All widths up to 24 in., P'gh	2.00c.
All widths up to 24 in., Chicago	2.10c.
All widths up to 24 in., del'd Detroit	2.20c.
All widths up to 24 in., Birmingham	2.15c.
Cooperage stock, Pittsburgh	2.10c.
Cooperage stock, Chicago	2.20c.

Cold-Rolled Strips

	Base per Lb.
F.o.b. Pittsburgh	2.80c.
F.o.b. Cleveland	2.80c.
Del'd Chicago	3.08c.
F.o.b. Worcester	3.00c.

Fender Stock

No. 16 and heavier, Pittsburgh or Cleveland	3.20c.
F.o.b. Worcester	3.60c.
No. 17 and lighter, Pittsburgh or Cleveland	3.50c.
F.o.b. Worcester	3.90c.

Hot-Rolled Rail Steel Strips

	Base per Lb.
F.o.b. Pittsburgh	1.80c.
F.o.b. Chicago	1.85c.
F.o.b. Birmingham	1.95c.

WIRE PRODUCTS

(Carload lots, f.o.b. Pittsburgh and Cleveland.)

	To Manufacturing Trade Per Lb.
Bright wire	2.30c.
Spring wire	3.20c.

To Jobbing Trade

Qualified jobbers are entitled to a reduction of 20c. a 100 lb. from the base price on carload shipments to stock, and of 10c. a 100 lb. on less-carload shipments to stock.

	Base per Keg
Standard wire nails	$2.60
Smooth coated nails	2.60
Galvanized nails:	
15 gage and coarser	4.60
16 gage and finer	5.10

	Base per 100 Lb.
Annealed fence wire	$2.45
Galvanized fence wire	2.80
Polished staples	3.30
Galvanized staples	3.35
Barbed wire, galvanized	3.00
Woven wire fence, base column	65.00

Chicago and Anderson, Ind., mill prices are $1 a ton over Pittsburgh base (on all products except woven wire fence, for which the Chicago price is $2 above Pittsburgh); Duluth, Minn., and Worcester, Mass., mill prices are $2 a ton over Pittsburgh (except for woven wire fence of Duluth which is $3 over Pittsburgh), and Birmingham mill prices are $3 a ton over Pittsburgh.

On manufacturers' wire prices at Pacific ports are $9 above the Pittsburgh base. On high-carbon spring wire, prices at Pacific ports are also $9 above Pittsburgh. On wire nails, barbed wire, staples and fence wire, prices at Houston, Galveston and Corpus Christi are $6 a ton over Pittsburgh, while New Orleans and Pacific Coast prices are $8 over Pittsburgh. Exception: on fence wire Pacific Coast prices are $11 a ton above Pittsburgh.

Wire Hoops, Twisted or Welded

	Off List
F.o.b. Pittsburgh	35 and 2½ off
F.o.b. Chicago	35 off

Bale Ties, Single Loop

	Base per Net Ton
F.o.b. Pittsburgh	$62.00
F.o.b. Chicago	64.00
F.o.b. Duluth	65.00
F.o.b. Cleveland	63.00
F.o.b. Birmingham	66.00
F.o.b. cars dock Houston, Galveston, Beaumont, Orange or Corpus Christi, Tex.	72.00
F.o.b. cars dock Pacific ports	74.00

STEEL AND WROUGHT PIPE AND TUBING

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

F.o.b. Pittsburgh only on wrought iron pipe.

Butt Weld

Steel Inches	Black	Galv.	*Wrought Iron* Inches	Black	Galv.
⅛	....51½	29½	⅛	..+91½	+138
¼ to ⅜	..53½	35	¼ & ⅜	+11½	+21½
½	....58½	47	½	....31½	15
¾	62	52	¾	....36½	20½
1 to 3	64	55	1 & 1¼	..39½	25½
			1½	...43½	28
			2	....41½	26

Lap Weld

2	60	51	2	 37	22½
2½ to 3	..63	54	2½ to 3½	38	25
3½ to 6	..65	56	4 to 8	... 40	28½
7 and 8	..64	54	9 to 12	..38	24½
9 and 10	..63½	53½			
11 and 12	.62½	52½			

Butt Weld, extra strong, plain ends

⅛	....48½	33½	⅛	....+13	+45½
¼ to ⅜	..51	38	¼ & ⅜	+2½	+34½
½	....56½	47½	½	....32½	17½
¾	61	52	¾	....37½	22½
1 to 3	63	55	1 to 2	..43½	29

Lap Weld, extra strong, plain ends

2	58	50	2	 40	26
2½ to 3	..62	54	2½ to 4	45½	33
3½ to 6	..65½	57½	4½ to 6	45	33½
7 and 8	..64½	54½	7 & 8	.. 46	33
9 and 10	..63½	53½	9 to 12	.41½	30
11 and 12	.62½	52½			

On standard steel pipe an extra 5% off is allowed on sales to consumers while two 5's off apply on sales to jobbers. On less-than-carload shipments prices are determined by adding 20 and 25% and the carload freight rate to the base card. On structural steel pipe the base card is reduced 2 points and two 5's off are allowed to consumers and three 5's off to jobbers.

Note—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Seamless Steel Commercial Boiler Tubes and Locomotive Tubes

(Net base prices per 100 ft. f.o.b. Pittsburgh, in carload lots)

			Cold Drawn	Hot Rolled
1 in. o.d.	13	B.W.G.	$ 8.60	....
1¼ in. o.d.	13	B.W.G.	10.19	....
1½ in. o.d.	13	B.W.G.	11.26	....
1¾ in. o.d.	13	B.W.G.	12.81	....
2 in. o.d.	13	B.W.G.	14.35	$13.64
2¼ in. o.d.	13	B.W.G.	16.00	14.54
2½ in. o.d.	12	B.W.G.	19.29	17.54
2¾ in. o.d.	12	B.W.G.	20.45	18.59
3 in. o.d.	12	B.W.G.	21.45	19.50
3¼ in. o.d.	11	B.W.G.	25.22	22.93
3½ in. o.d.	11	B.W.G.	27.09	24.62
4 in. o.d.	10	B.W.G.	33.60	30.54
4½ in. o.d.	10	B.W.G.	41.08	37.35
5 in. o.d.	9	B.W.G.	51.56	46.87
6 in. o.d.	7	B.W.G.	79.15	71.96

Extras for less-carload quantities:

25,000 lb. or ft. to 39,999 lb. or ft.	5 %
10,000 lb. or ft. to 24,999 lb. or ft.	12½ %
2,000 lb. or ft. to 9,999 lb. or ft.	25 %
Under 2,000 lb. or ft.	40 %

Hot-Finished Lapweld Steel Pressure Tubes

(Net base prices per 100 ft., f.o.b. Pittsburgh, in carload lots)

1½	in. o.d.	13 B.W.G.	$ 9.72
1¾	in. o.d.	13 B.W.G.	11.06
2	in. o.d.	13 B.W.G.	12.38
2¼	in. o.d.	13 B.W.G.	13.79
2½	in. o.d.	12 B.W.G.	16.58
2¾	in. o.d.	12 B.W.G.	17.54
3	in. o.d.	12 B.W.G.	18.55
3¼	in. o.d.	11 B.W.G.	21.56
3½	in. o.d.	11 B.W.G.	23.15
4	in. o.d.	10 B.W.G.	28.66
4½	in. o.d.	10 B.W.G.	35.22
5	in. o.d.	9 B.W.G.	44.25
6	in. o.d.	7 B.W.G.	68.14

Quantity Extras:

40,000 lb. or ft.	base
25,000 lb. or ft. to 39,999 lb. or ft.	plus 5 %
10,000 lb. or ft. to 24,999 lb. or ft.	plus 12½ %
2,000 lb. or ft. to 9,999 lb. or ft.	plus 25 %
Under 2,000 lb. or ft.	plus 40 %

CAST IRON WATER PIPE

	Per Net Ton
6-in. and larger, del'd Chicago	$47.00
4-in., del'd Chicago	50.00
6-in. and larger, del'd New York	45.00
4-in. del'd New York	48.00
6-in. and larger, Birmingham	39.00
4-in. Birmingham	42.00

Class "A" and gas pipe, $3 extra

RAILROAD MATERIALS

Rails and Track Supplies

F.o.b. Mill

Standard rails, heavier than 60 lb., per gross ton	$36.37½
Angle bars, per 100 lb.	2.55

F.o.b. Code Basing Points

Light rails (from billets) per gross ton	$35.00
Light rails (from rail steel) per gross ton	34.00

	Base per 100 Lb.
Spikes, 9/16 in. and larger	$2.40
Spikes, ½ in. and smaller	2.40
Spikes, boat and barge	2.40
Tie plates, steel	1.90
Track bolts, to steam railroads	3.55
Track bolts, no jobbers, all sizes (per 100 count)	.70 per cent off list

Basing points on light rails are Pittsburgh, Chicago and Birmingham; on spikes and tie plates, Pittsburgh, Chicago, Buffalo, Portsmouth, Ohio, Weirton, W. Va., St. Louis, Kansas City, Minneapolis, Colo., Birmingham and Pacific Coast ports; on tie plates alone, Steelton, Pa.; on spikes alone, Cleveland, Youngstown, Lebanon, Pa., Columbia, Pa., Richmond, Va., Jersey City, N. J.

Girder Rails

	Per Gross Ton
F.o.b. Lorain	$47.00
F.o.b. Steelton	47.00

Splice Bars for Girder Rails

	Base per 100 Lb.
F.o.b. Lorain and Steelton	$4.30

Steel Car Axles

	Base per Lb.
F.o.b. Pittsburgh	2.65c.
F.o.b. Chicago	2.65c.
F.o.b. Birmingham	2.65c.

BOLTS, NUTS, RIVETS AND SET SCREWS

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)

	Per Cent Off List
Machine bolts	70
Carriage bolts	70
Lag bolts	70
Plow bolts, Nos. 1, 2, 3 and 7 heads	70
Hot-pressed nuts, blank or tapped, square	70
Hot-pressed nuts, blank or tapped, hexagons	70
C.p.c. and t. square or hex. nuts, blank or tapped	70
Semi-finished hexagon nuts	70
Semi-finished hexagon castellated nuts, S.A.E.	70
Stove bolts in packages, Pittsburgh	75
Stove bolts in packages, Chicago	75
Stove bolts in packages, Cleveland	75
Stove bolts in bulk, P'gh	85
Stove bolts in bulk, Chicago	85
Stove bolts in bulk, Cleveland	85
Tire bolts	60

Large Rivets

(½-in. and larger)

	Base per 100 Lb.
F.o.b. Pittsburgh or Cleveland	$3.00
F.o.b. Chicago	3.10
F.o.b. Birmingham	3.15

Small Rivets

(7/16-in. and smaller)

	Per Cent Off List
F.o.b. Pittsburgh	70 and 5
F.o.b. Cleveland	70 and 5
F.o.b. Chicago and Birm'g'm	70 and 5

Cap and Set Screws

(Freight allowed up to but not exceeding 65c. per 100 lb. on lots of 200 lb. or more)

	Per Cent Off List
Milled cap screws, 1 in. dia. and smaller	75, 10 and 10
Milled standard set screws, case hardened, 1 in. dia. and smaller	75 and 10
Milled headless set screws, cut thread ⅜ in. and smaller	75
Upset hex. head cap screws, U.S.S.S. or S.A.E. thread, 1 in. dia. and smaller	85
Upset set screws, cut and oval point	75 and 10
Milled studs	65

Alloy and Stainless Steel

Alloy Steel Ingots

F.o.b. Pittsburgh, Chicago, Canton, Massillon, Buffalo, Bethlehem. Uncropped .....$42 per gross ton

Alloy Steel Blooms, Billets and Slabs

F.o.b. Pittsburgh, Chicago, Canton, Massillon, Buffalo, Bethlehem. Base price, $51 a gross ton. Price del'd Detroit is $54

Alloy Steel Bars

F.o.b. Pittsburgh, Chicago, Buffalo, Bethlehem, Massillon or Canton. Open-hearth grade, base .....2.55c. a lb. Delivered price at Detroit is 2.70c.

S.A.E. Series Numbers	Alloy Differential per 100 lb.
2000 (1½% Nickel)	$0.25
2100 (2½% Nickel)	0.55
2300 (3½% Nickel)	1.50
2500 (5% Nickel)	2.25
3100 Nickel Chromium	3.55
3200 Nickel Chromium	1.35
3300 Nickel Chromium	3.80
3400 Nickel Chromium	3.20
4100 Chromium Molybdenum (0.15 to 0.25 Molybdenum)	0.50
4100 Chromium Molybdenum (0.25 to 0.40 Molybdenum)	0.70
4600 Nickel Molybdenum (0.20 to 0.30 Molybdenum) (1.50 to 2.00 Nickel)	1.05
5100 Chromium Steel (0.60 to 0.90 Chromium)	0.35
5100 Chromium Steel (0.80 to 1.10 Chromium)	0.45
5100 Chromium Spring Steel	base
6100 Chromium Vanadium Bar	1.20
4100 Chromium Vanadium Spring Steel	0.95
Chromium Nickel Vanadium	1.50
Carbon Vanadium	0.95

These prices are for hot-rolled steel bars. The differential for most grades in electric furnace steel is 50c. higher. The differential for cold-drawn bars is ½c. per lb. higher with separate extras. Blooms, billets and slabs under 4x4 in. or equivalent are sold on the bar base. Slabs with a section area of 16 in. and 24½ in. thick or over take the billet base. Sections 4x4 in. to 10x10 in. or equivalent carry a gross ton price, which is the net price for bars for the same analysis. Larger sizes carry extras.

Alloy Cold-Finished Bars

F.o.b. Pittsburgh, Chicago, Gary, Cleveland or Buffalo, 3.05c. base per lb.

STAINLESS STEEL No. 302

(17 to 19% Cr, 7 to 9% Ni, 0.08 to 0.20% C)

(Base Prices, f.o.b. Pittsburgh)

	Per Lb.
Bars	25c.
Plates	26c.
Sheets	32c.
Hot-rolled strip	20¾c.
Cold-rolled strip	27c.

Raw and Semi-Finished Steel

Carbon Steel Rerolling Ingots

F.o.b. Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham. Uncropped .....$29 per gross ton

Carbon Steel Forging Ingots

F.o.b. Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Birmingham. Uncropped .....$31 per gross ton

Billets, Blooms and Slabs

F.o.b. Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham.

	Per Gross Ton
Rerolling	$29.00
Forging quality	34.00
Delivered Detro't	
Rerolling	$32.00
Forging quality	37.00

Billets Only F.o.b. Duluth

Rerolling	$32.00
Forging	37.00

Sheet Bars

F.o.b. Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point, Md.

	Per Gross Ton
Open-hearth or Bessemer	$30.00

Skelp

F.o.b. Pittsburgh, Chicago, Youngstown, Buffalo, Coatesville, Pa., Sparrows Point, Md.

	Per Lb.
Grooved	1.70c.
Universal	1.70c.
Sheared	1.70c.

Tube Rounds

	Base per Lb.
F.o.b. Pittsburgh	1.90c.
F.o.b. Chicago	1.95c.
F.o.b. Cleveland	1.95c.
F.o.b. Buffalo	2.00c.
F.o.b. Birmingham	2.05c.

Wire Rods

(Common soft, base)

	Per Gross Ton
F.o.b. Pittsburgh	$38.00
F.o.b. Cleveland	38.00
F.o.b. Chicago	39.00
F.o.b. Anderson, Ind.	39.00
F.o.b. Youngstown	39.00
F.o.b. Worcester, Mass.	40.00
F.o.b. Birmingham	41.00
F.o.b. San Francisco	47.00

Pig Iron and Ferroalloys

PIG IRON

PRICES PER GROSS TON AT BASING POINTS

Basing Points	No. 2 Fdry.	Malleable	Basic	Bessemer
Everett, Mass.	$19.50	$20.00	$19.00	$20.50
Bethlehem, Pa.	19.50	20.00	19.00	20.50
Birdsboro, Pa.	19.50	20.00	19.00	20.50
Swedeland, Pa.	19.50	20.00	19.00	20.50
Steelton, Pa.	....	....	19.00	....
Sparrows Point, Md.	19.50	....	19.00	....
Neville Island, Pa.	18.50	18.50	18.00	19.00
Sharpsville, Pa.	18.50	18.50	18.00	19.00
Youngstown	18.50	18.50	17.00	19.00
Buffalo	18.50	19.00	17.50	19.50
Erie, Pa.	18.50	19.00	18.00	19.50
Cleveland	18.50	18.50	18.00	19.00
Toledo, Ohio	18.50	18.50	18.00	19.00
Jackson, Ohio	20.25	20.25	19.75	....
Detroit	18.50	18.50	18.00	19.00
Hamilton, Ohio	18.50	18.50	18.00	19.00
Chicago	18.50	18.50	18.00	19.00
Granite City, Ill.	18.50	18.50	18.00	....
Duluth, Minn.	19.00	19.00	....	19.50
Birmingham	14.50	14.50	13.50	19.00
Provo, Utah	17.50	....	17.00	....

DELIVERED PRICES PER GROSS TON AT CONSUMING CENTERS

	No. 2 Fdry.	Malleable	Basic	Bessemer
Boston Switching District				
From Everett, Mass.	$20.00	$20.50	$19.50	$21.00
Brooklyn				
From East Pa. or Buffalo	21.77	22.27	21.27	22.77
Newark or Jersey City, N. J.				
From East. Pa. or Buffalo	20.89	21.39	20.39	21.89
Philadelphia				
From Eastern Pa.	20.26	20.76	19.76	21.26
Cincinnati				
From Hamilton, Ohio	19.51	19.51	19.01	20.01
Canton, Ohio				
From Cleveland and Youngstown	19.76	19.76	19.26	20.26
Columbus, Ohio				
From Hamilton, Ohio	20.50	20.50	....	....
Mansfield, Ohio				
From Cleveland and Toledo	20.26	20.26	....	....
Indianapolis				
From Hamilton, Ohio	20.77	20.77	....	....
South Bend, Ind.				
From Chicago	20.55	20.55	....	....
Milwaukee				
From Chicago	19.50	19.50	....	....
St. Paul				
From Duluth	20.94	....	....	....
Davenport, Iowa				
From Chicago	20.26	20.26	....	....
Kansas City				
From Granite City	21.04	21.04	....	....

Delivered prices on Southern iron for shipment to Northern points are 38c. a gross ton below delivered prices from the nearest Northern basing points.

LOW PHOSPHORUS PIG IRON

Basing points: Birdsboro, Pa., Steelton, Pa., and Standish, N. Y. $23.50
Johnson City, Tenn. 19.50
Del'd Chicago 25.18

GRAY FORGE PIG IRON

Valley furnace $18.25

CHARCOAL PIG IRON

Lake Superior furnace $21.00
Delivered Chicago 24.04
Delivered Buffalo 24.28

CANADA

Pig Iron

Per gross ton:

Delivered Toronto

No. 1 fdy., sil. 2.25 to 2.75	$21.00
No. 2 fdy., sil. 1.75 to 2.75	20.50
Malleable	21.00

Delivered Montreal

No. 1 fdy., sil. 2.25 to 2.75	$22.50
No. 2 fdy., sil. 1.75 to 2.25	22.00
Malleable	22.50
Basic	22.00

FERROALLOYS

Ferromanganese

F.o.b. New York, Philadelphia, Baltimore, Mobile or New Orleans.

	Per Gross Ton
Domestic, 80% (carload)	$85.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$26.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50% (carloads)	$77.50
50% (ton lots)	85.00
75% (carloads)	126.00
75% (ton lots)	136.00
14% to 16% (f.o.b.) Welland, Ont. (In carloads) (duty paid)	31.00
14% to 16% (less carloads)	38.50

Silvery Iron

F.o.b. Jackson, Ohio, Furnace

Per Gross Ton		Per Gross Ton	
6%	$22.75	12%	$29.25
7%	23.75	13%	30.75
8%	24.75	14%	32.25
9%	25.75	15%	33.75
10%	26.75	16%	35.25
11%	27.75	17%	36.75

Base prices at Buffalo are $1.25 higher than at Jackson except on 17 to 18% in which the Buffalo price is $1.75 a ton higher.

Bessemer Ferrosilicon

F.o.b. Jackson, Ohio, Furnace

Per Gross Ton		Per Gross Ton	
10%	$27.75	14%	$33.25
11%	28.75	15%	34.75
12%	30.25	16%	36.25
13%	31.75	17%	37.75

Manganese 1½ to 3%, $1 a ton additional. For each unit of manganese over 3%, $1 a ton additional. Phosphorus 0.75% or over, $1 ton additional.

Base prices at Buffalo are $1.25 a ton higher than at Jackson.

Other Ferroalloys

Ferrotungsten, per lb. contained W, del., carloads	$1.40 to $1.50
Ferrotungsten, less carloads	1.55 to 1.60
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr. per lb. contained Cr. delivered, in carloads	10.00c.
Ferrochromium, 2% carbon	16.50c. to 17.00c.
Ferrochromium, 1% carbon	17.50c. to 18.00c.
Ferrochromium, 0.10% carbon	19.50c. to 20.00c.
Ferrochromium, 0.06% carbon	20.00c. to 20.50c.
Ferrovanadium, del., per lb. contained V	$2.70 to $2.90
Ferrocarbontitanium, 15 to 18% Ti, 6 to 8% C, f.o.b. furnace carload and contract per net ton	$137.50
Ferrophosphorus, electric, or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per gross ton with $2 unitage	50.00
Ferrophosphorus, electric, 24% f.o.b. Anniston, Ala., per gross ton with $2.75 unitage	65.00
Ferromolybdenum, per lb. Mo., del.	95c.
Calcium molybdate, per lb. Mo., del.	80c.
Silico spiegel, per ton, f.o.b. furnace, car lots	$38.00
Ton lots or less, per ton	45.50
Silico-manganese, gross ton, delivered:	
2.50% carbon grade	90.00
2% carbon grade	95.00
1% carbon grade	105.00
Spot prices	$5 a ton higher

Iron and Steel Scrap

PITTSBURGH

Per gross ton delivered consumers' yards:	
No. 1 heavy melting steel	$11.50 to $12.00
No. 2 heavy melting steel	10.50 to 11.00
No. 2 railroad wrought	11.50 to 12.00
Scrap rails	11.50 to 12.00
Rails 3 ft. and under	14.50 to 15.00
Compressed sheet steel	11.00 to 11.50
Hand bundled sheet steel	10.00 to 10.50
Hvy. steel axle turnings	11.00 to 11.50
Machine shop turnings	7.50 to 8.00
Short shov. turnings	7.50 to 8.00
Short mixed borings and turnings	7.00 to 7.50
Cast iron borings	7.00 to 7.50
Cast iron carwheels	11.50 to 12.00
Heavy breakable cast	10.00 to 10.50
No. 1 cast	12.00 to 12.50
Railr. knuckles and couplers	13.75 to 14.25
Rail. coil and leaf springs	13.75 to 14.25
Rolled steel wheels	13.75 to 14.25
Low phos. billet crops	15.50 to 16.00
Low phos. sheet bar crops	14.50 to 15.00
Low phos. plate scrap	13.50 to 14.00
Low phos. punchings	14.00 to 14.50
Steel car axles	14.50 to 15.00

CHICAGO

Delivered Chicago district consumers: Per Gross Ton	
Heavy melting steel	$9.50 to $10.00
Automobile hvy. melt. steel	8.75 to 9.25
Shoveling steel	$9.50 to $10.00
Hydraulic comp. sheets	8.50 to 9.00
Drop forge flashings	7.50 to 8.00
No. 1 busheling	8.00 to 8.50
Rolled carwheels	10.25 to 10.75
Railroad tires	10.25 to 10.75
Railroad leaf springs	10.25 to 10.75
Axle turnings	8.00 to 8.50
Steel couplers and knuckles	10.00 to 10.50
Coil springs	10.25 to 10.75
Axle turnings (elec. fur.)	8.50 to 9.00
Low phos. punchings	10.50 to 11.00
Low phos. plates, 12 in. and under	10.50 to 11.00
Cast iron punchings	5.00 to 5.50
Short shoveling turnings	5.00 to 5.50
Machine shop turnings	5.00 to 5.50
Rerolling rails	10.50 to 11.00
Steel rails, less than 3 ft.	10.50 to 11.00
Steel rails, less than 2 ft.	11.00 to 11.50
Angle bars, steel	10.25 to 10.75
Cast iron carwheels	9.75 to 10.25
Railroad malleable	9.75 to 10.25
Agricultural malleable	8.00 to 8.50

Per Net Ton	
Iron car axles	$11.25 to $11.75
Steel car axles	10.50 to 11.00
No. 1 railroad wrought	7.50 to 8.00
No. 2 railroad wrought	8.25 to 8.75
No. 2 busheling	2.75 to 3.25
Locomotive tires, smooth	8.50 to 9.00
Pipe and flues	4.00 to 4.50
No. 1 machinery cast	7.50 to 8.00
Clean automobile cast	7.50 to 8.00
No. 1 railroad cast	7.00 to 7.50
No. 1 agricultural cast	6.00 to 6.50
Stove plate	5.50 to 6.00
Grate bars	5.00 to 5.50
Brake shoes	6.50 to 7.00

PHILADELPHIA

Per gross ton delivered consumers' yards:		
No. 1 heavy melting steel	....	$10.50
No. 2 heavy melting steel	$9.00 to	9.50
No. 1 railroad wrought	12.00 to	12.50
Bundled sheets	....	9.50
Hydraulic compressed, new	....	10.00
Hydraulic compressed, old	....	7.00
Machine shop turnings	6.50 to	7.00
Heavy axle turnings	9.00 to	9.50
Cast borings	5.50 to	6.00
Heavy breakable cast	10.50 to	10.75
Stove plate (steel works)	8.00 to	8.50
No. 1 low phos. heavy	....	15.00
Couplers and knuckles	14.00 to	14.50
Rolled steel wheels	14.00 to	14.50
No. 1 blast furnace	5.50 to	6.00
Spec. iron and steel pipe	....	9.00
Shafting	15.00 to	16.00
Steel axles	....	14.50
No. 1 forge fire	9.50 to	10.00
Cast iron car wheels	11.00 to	11.50
No. 1 cast	12.00 to	12.50
Cast borings (chem.)	12.00 to	14.00
Steel rails for rolling	....	13.00

CINCINNATI

Dealers' buying prices per gross ton:	
Heavy melting steel	$7.25 to $7.75
Scrap rails for melting	8.25 to 8.75
Loose sheet clippings	3.75 to 4.25
Bundled sheets	5.75 to 6.25
Cast iron borings	5.00 to 5.50
Machine shop turnings	4.75 to 5.25
No. 1 busheling	6.25 to 6.75
No. 2 busheling	2.75 to 3.25
Rails for rolling	8.75 to 9.25
No. 1 locomotive tires	8.50 to 9.00
Short rails	11.25 to 11.75
Cast iron carwheels	7.75 to 8.25
No. 1 machinery cast	9.00 to 9.50
No. 1 railroad cast	8.50 to 9.00
Burnt cast	6.00 to 6.50
Stove plate	6.00 to 6.50
Agricultural malleable	8.00 to 8.50
Railroad malleable	8.00 to 8.50

CLEVELAND

Per gross ton delivered consumers' yards:		
No. 1 heavy melting steel	$9.25 to	$9.75
No. 2 heavy melting steel	8.75 to	9.25
Compressed sheet steel	8.75 to	9.25
Light bundled sheet stampings	7.25 to	7.50
Drop forge flashings	8.75 to	9.25
Machine shop turnings	7.25 to	7.50
Short shoveling turnings	7.25 to	7.50
No. 1 busheling	8.75 to	9.25
Steel axle turnings	8.25 to	8.75
Low phos. billet crops	13.25 to	13.75
Cast iron borings	7.25 to	7.50
Mixed borings and short turnings	7.25 to	7.50
No. 2 busheling	7.25 to	7.50
No. 1 cast	11.50 to	11.75
Railroad grate bars	7.00 to	7.50
Stove plate	6.50 to	7.00
Rails under 3 ft.	14.50 to	15.00
Rails for rolling	16.00 to	16.50
Railroad malleable	11.50 to	12.00
Cast iron carwheels	10.75 to	11.25

BUFFALO

Per gross ton, f.o.b. Buffalo consumers' plants:	
No. 1 heavy melting steel	$11.50 to $12.00
No. 2 heavy melting scrap	10.00 to 10.50
Scrap rails	11.00 to 11.50
New hydraul. comp. sheets	10.00 to 10.50
Old hydraul. comp. sheets	9.00 to 9.50
Drop forge flashings	10.00 to 10.50
No. 1 busheling	10.00 to 10.50
Hvy. steel axle turnings	8.00 to 8.50
Machine shop turnings	5.00 to 5.50
Knuckles and couplers	12.00 to 12.50
Coil and leaf springs	12.00 to 12.50
Rolled steel wheels	12.00 to 12.50
Low phos. billet crops	12.50 to 13.00
Short shov. steel turnings	6.50 to 7.00
Short mixed borings and turnings	6.50 to 7.00
Cast iron borings	6.50 to 7.00
No. 2 busheling	6.50 to 7.00
Steel car axles	12.00 to 12.50
Iron axles	12.00 to 12.50
No. 1 machinery cast	11.50 to 12.00
No. 1 cupola cast	9.50 to 10.00
Stove plate	9.50 to 9.75
Steel rails, 3 ft. and under	13.50 to 14.00
Cast iron carwheels	11.50 to 12.00
Industrial malleable	11.50 to 12.00
Railroad malleable	11.50 to 12.00
Chemical borings	8.50 to 9.00

BOSTON

Dealers' buying prices per gross ton:	
No. 1 heavy melting steel	$5.50 to $6.00
Scrap T rails	5.50 to 6.00
No. 2 steel	4.75 to 5.00
Breakable cast	6.00 to 6.50
Machine shop turnings	1.50 to 1.55
Bundled skeleton, long	3.75 to 4.00
Forge flashings	3.75 to 4.00
Blast furnace scrap	2.00 to 2.50
Shafting	11.00 to 11.25
Steel car axles	10.50 to 11.00
Wrought pipe	5.00 to 5.25
Cast iron borings, chemical	8.00 to 8.25
Stove plate	.... 6.50

Per gross ton delivered consumers' yards:	
Textile cast	$7.50 to $9.00
No. 1 machinery cast	7.50 to 9.00
Railroad malleable	11.00 to 11.50

NEW YORK

Dealers' buying prices per gross ton:		
No. 1 heavy melting steel	*$7.00	†$8.00
No. 2 heavy melting steel	*5.50	†6.50
Heavy breakable cast	$7.00 to	7.50
No. 1 machinery cast	....	8.00
No. 2 cast	6.25 to	6.75
Stove plate	....	5.50
Steel car axles	10.75 to	11.50
No. 1 railroad wrought	7.50 to	8.00
No. 1 yard wrought, long	6.50 to	7.00
Spec. iron and steel pipe	4.50 to	5.00
Forge fire	5.50 to	6.00
Rails for rerolling	8.50 to	9.00
Short shoveling turnings	3.00 to	4.00
Machine shop turnings	3.00 to	3.50
Cast borings	4.50 to	4.75
No. 1 blast furnace	2.00 to	2.50
Cast borings (chemical)	11.00 to	11.50
Unprepared yard iron and steel	....	4.00

Per gross ton, delivered local foundries:	
No. machinery cast	$10.75
No. 1 hvy. cast (cupola size)	9.75
No. 2 cast	8.25

*For direct car loading only.
†Loading on barge.

BIRMINGHAM

Per gross ton delivered consumers' yards:		
Heavy melting steel	....	$10.00
Scrap steel rails	....	9.00
Short shoveling turnings	....	5.50
Stove plates	$7.00 to	7.50
Steel axles	10.50 to	11.00
Iron axles	10.50 to	11.00
No. 1 railroad wrought	....	7.00
Rails for rolling	....	10.50
No. 1 cast	9.00 to	9.50
Tramcar wheels	9.00 to	9.50
Cast iron borings, chem.	....	8.00

ST. LOUIS

Per gross ton delivered consumers' yards:	
Selected heavy steel	$8.75 to $9.25
No. 1 heavy melting	8.50 to 9.00
No. 2 heavy melting	7.00 to 7.50
No. 1 locomotive tires	9.50 to 10.00
Misc. stand-sec. rails	8.75 to 9.25
Railroad springs	10.25 to 10.75
Bundled sheets	6.75 to 7.25
No. 2 railroad wrought	8.00 to 8.50
No. 1 busheling	5.00 to 5.50
Cast iron borings and shoveling turnings	4.75 to 5.25
Rails for rolling	9.75 to 10.25
Machine shop turnings	4.50 to 5.00
Heavy turnings	5.50 to 6.00
Steel car axles	10.50 to 11.00
Iron car axles	13.00 to 13.50
No. 1 railroad wrought	5.50 to 6.00
Steel rails less than 3 ft.	10.75 to 11.25
Steel angle bars	9.00 to 9.50
Cast iron carwheels	8.00 to 8.50
No. 1 machinery cast	9.00 to 9.50
Railroad malleable	9.00 to 9.50
No. 1 railroad cast	8.50 to 9.00
Stove plate	6.50 to 7.00
Agricult. malleable	9.00 to 9.50

DETROIT

Dealers' buying prices per gross ton:	
Heavy melting steel	$7.00 to $7.50
Borings and short turnings	5.00 to 5.50
Long turnings	$4.00 to $4.50
No. 1 machinery cast	9.00 to 9.50
Automotive cast	10.00 to 10.50
Hydraul. comp. sheets	7.00 to 7.50
Stove plate	6.50 to 7.00
New factory busheling	6.00 to 6.50
Old No. 2 busheling	4.25 to 4.75
Sheet clippings	3.50 to 4.00
Flashings	6.00 to 6.50
Low phos. plate scrap	7.50 to 8.00

CANADA

Dealers' buying prices per gross ton:

	Toronto	Montreal
Heavy melting steel	$5.50	$5.50
Rails scrap	6.00	4.50
Machine shop turnings	2.50	2.50
Boiler plate	4.50	4.50
Heavy axle turnings	2.50	2.50
Cast borings	3.00	3.00
Steel borings	2.00	2.00
Wrought pipe	2.50	2.50
Steel axles	4.50	6.00
Axles wrought iron	4.50	6.50
No. 1 machinery cast	7.75	9.00
Stove plate	4.50	5.00
Standard carwheels	7.25	7.00
Malleable	6.75	7.00

ORES, FLUORSPAR, COKE, FUEL, REFRACTORIES

Lake Superior Ores

Delivered Lower Lake Ports

Per Gross Ton	
Old range, Bessemer, 51.5% iron	$4.80
Old range, non-Bessemer, 51.50% iron	4.65
Mesabi, Bessemer, 51.50% iron	4.65
Mesabi, non-Bessemer, 51.50% iron	4.50
High phosphorus, 51.50% iron	4.40

Foreign Ore

C.i.f. Philadelphia or Baltimore

Per Unit	
Iron, low phos., copper free, 55 to 58% iron, dry Spanish or Algerian	9.50c
Iron, low phos., Swedish, average 68½% iron	9.50c
Iron, basic or foundry, Swedish, average, 65% iron	9c
Iron, basic or foundry, Russian, aver. 65% iron	9c
Manganese, Caucasian, washed 52%	24c
Manganese, African, Indian, 44-48%	21c
Manganese, African, Indian, 49-51%	24c
Manganese, Brazilian, 46 to 48½	20c

Per Net Ton Unit	
Tungsten, Chinese, wolframite, duty paid, delivered*	$18.75 to $19.25
Tungsten, domestic scheelite, delivered†	17.00

Per Gross Ton	
Chrome, 45%, Cr_2O_3, crude, c.i.f. Atlantic Seaboard	$17.00
Chrome, 48% Cr_2O_3, c.i.f. Atlantic Seaboard	20.00

*Quotations nominal in absence of sales
†Nominal; no supplies available.

Fluorspar

Per Net Ton	
Domestic, washed gravel, 85-5 f.o.b. Kentucky and Illinois mines for all-rail shipment	$17.00
Same grade for Ohio River barge shipment for Kentucky and Illinois River landings	18.50
No. 2 lump, 85-5, f.o.b. Kentucky and Illinois mines	$17.50 to 18.00
Foreign, 85% calcium fluoride, not over 5% silicon, c.i.f. Atlantic port, duty paid	19.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silicon, f.o.b. Illinois and Kentucky mines	30.00

COKE, COAL AND FUEL OIL

Coke

Per Net Ton	
Furnace, f.o.b. Connellsville Prompt	$3.85
Furnace, f.o.b. Connellsville Prompt	$4.60 to 5.60
Foundry, by-product, Chicago ovens, for delivery outside switching district	8.50
Foundry, by-product, delivered in Chicago switching district	9.25
Foundry, by-product, New England, delivered	11.00
Foundry, by-product, Newark or Jersey City, del'd	8.20 to 8.81
Foundry, by-product, Phila.	9.00
Foundry, by-product, Cleveland, delivered	$9.25
Foundry, Birmingham	6.00
Foundry, by-product, St. Louis, f.o.b. ovens	8.00
Foundry, by-product, del'd St. Louis	9.00

Coal

Per Net Ton	
Mine run steam coal, f.o.b. W. Pa. mines	$1.80 to $2.05
Mine run coking coal f.o.b. W. Pa.	2.05 to 2.25
Gas coal, ¾-in. f.o.b. Pa. mines	2.25 to 2.55
Mine run gas coal, f.o.b. Pa. mines	2.05 to 2.45
Steam slack, f.o.b. W. Pa. mines	1.55 to 1.65
Gas slack, f.o.b. W. Pa. mines	1.90 to 2.10

Fuel Oil

Per Gal. f.o.b. Bayonne, N. J.	
No. 3 distillate	4.00c.
No. 4 industrial	3.50c.

Per Gal. f.o.b. Baltimore	
No. 3 distillate	4.00c.
No. 4 industrial	3.50c.

Per Gal. del'd Chicago	
No. 3 industrial fuel oil	3.88c.
No. 5 industrial fuel oil	3.38c.

Per Gal. f.o.b. Cleveland	
No. 3 distillate	5.75c.
No. 4 industrial	5.50c.
No. 5 industrial	4.75c.

REFRACTORIES

Fire Clay Brick

	Per 1000 f.o.b. Works High-heat Duty Brick	Intermediate Duty Brick
Pennsylvania	$45.00	$40.00
Maryland	45.00	40.00
New Jersey	55.00	43.00
Ohio	45.00	40.00
Kentucky	45.00	40.00
Missouri	45.00	40.00
Illinois	45.00	40.00
Ground fire clay, per ton	7.00	

Chrome Brick

Per Net Ton	
Standard size	$45.00

Silica Brick

Per 1000 f.o.b. Works	
Pennsylvania	$45.00
Chicago	54.00
Birmingham	55.00
Silica clay, per ton	8.00

Magnesite Brick

Per Net Ton	
Standard sizes, burned, f.o.b. Baltimore and Chester, Pa.	$65.00
Unburned, f.o.b. Baltimore	55.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00
Domestic, f.o.b. Chewelah, Wash.	22.00

Warehouse Prices for Steel Products

PITTSBURGH

	Base per Lb.
Plates	3.20c.
Structural shapes	3.20c.
Soft steel bars and small shapes	3.00c.
Reinforcing steel bars	3.00c.
Cold-finished and screw stock—	
Rounds and hexagons	*3.45c.
Squares and flats	*3.45c.
Hoops and bands under ¼ in.	3.35c.
Hot-rolled annealed sheets (No. 24), 25 or more bundles	3.55c.
Galv. sheets (No. 24), 25 or more bundles	4.10c.
Hot-rolled sheets (No. 10)	3.10c.
Galv. corrug. sheets (No. 28), per square (more than 3750 lb.)	$3.32
Spikes, large	2.90c.
Track bolts, all sizes, per 100 count, 65 per cent off list.	
Machine bolts, 100 count, 65 per cent off list.	
Carriage bolts, 100 counts, 65 per cent off list.	
Nuts, all styles, 100 count, 65 per cent off list.	
Large rivets, base per 100 lb.	$3.50
Wire, black, soft ann'l'd, base per 100 lb.	*2.70c.
Wire, galv. soft, base per 100 lb.	*2.925c.
Common wire nails, per keg	*2.834c.
Cement coated nails, per keg	*2.834c.

On plates, structurals, bars, reinforcing bars, bands, hoops and blue annealed sheets, base applied to orders of 400 to 9999 lb.

*Delivered in Pittsburgh switching district.

CHICAGO

	Base per Lb.
Plates and structural shapes	3.25c.
Soft steel bars	3.05c.
Cold-fin. steel bars and shafting	
Rounds and hexagons	3.50c.
Flats and squares	3.50c.
Hot-rolled strip	3.45c.
Hot-rolled annealed sheets (No. 24)	4.10c.
Galv. sheets (No. 24)	4.70c.
Hot-rolled sheets (No. 10)	3.20c.
Spikes (9/16 in. and lighter)	3.50c.
Track bolts	4.65c.
Rivets, structural (keg lots)	3.50c.
Rivets, boiler (keg lots)	3.60c.
	Per Cent Off List
Machine bolts	60 and 5
Carriage bolts	60 and 5
Coach and lag screws	60 and 5
Hot-pressed nuts, sq. tap. or blank	60 and 5
Hot-pressed nuts, hex. tap or blank	60 and 5
Hex. head and cap screws	85
Cup point set screws	70 and 10
Flat head bright wood screws	37½ and 10
Spring cotters	50
Store bolts in full packages	..70 and 10
Rd. hd. tank rivets, 7/16 in. and smaller	57½
Wrought washers	$5.00 off list
No. 8 black ann'l'd wire per 100 lb.	$3.85
Com. wire nails, base per keg	3.05c.
Cement c't'd nails, base per keg	3.05c.

NEW YORK

	Base per Lb.
Plates, ¼ in. and heavier	3.45c.
Structural shapes	3.42c.
Soft steel bars, small shapes	3.32c.
Iron bars	3.32c.
Iron bars, swed. charcoal	..6.50 to 7.25c.
Cold-fin. shafting and screw stock; Rounds and hexagons	3.92c.
Flats and squares	4.42c.
Cold-roll. strip, soft and quarter hard	3.52c.
Hoops	3.67c.
Bands	3.67c.
Hot-rolled sheets (No. 10)	3.42c.
Hot-rolled ann'l'd sheets (No. 24*)	4.05c.
Galvanized sheets (No. 24*)	4.65c.
Long terne sheets (No. 24)	5.40c.
Standard tool steel	11.00c.
Wire, black annealed (No. 10)	3.30c.
Wire, galv. (No. 10)	3.80c.
Tire steel, 1 x ½ in. and larger	3.65c.
Open hearth spring steel	4.00c. to 10.00c.
Common wire nails, base, per keg	$3.25
	Per Cent Off List
Machine bolts, cut thread: Up to 1 in. dia. inclusive	60
Over 1 in. dia.	50
Carriage bolts, cut thread: Up to ½ in. dia. inclusive	60
Over ½ in. dia.	50
Boiler tubes:	Per 100 Ft.
Lap welded, 2-in.	$18.05
Seamless welded, 2-in.	19.24
Charcoal iron, 2-in.	24.94
Charcoal iron, 4-in.	63.65

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

ST. LOUIS

	Base per Lb.
Plates and struc. shapes	3.49c.
Bars, soft steel or iron	3.29c.
Cold-fin. rounds, shafting, screw stock	3.74c.
Hot-rolled annealed sheets (No. 24)	3.94c.
Galv. sheets (No. 24)	4.54c.
Hot-rolled sheets (No. 10)	3.44c.
Black corrug. sheets (No. 24)	3.99c.
*Galv. corrug. sheets	4.59c.
Structural rivets	3.84c.
Boiler rivets	3.94c.
	Per Cent Off List
Tank rivets, 7/16 in. and smaller	60
Machine and carriage bolts, lag screws, fittings up bolts, bolt ends, plow bolts, hot-pressed nuts, square and hexagon, tapped or blank, semi-finished nuts 1000 lb. or over	60
200 to 999 lb.	55 and 5
100 to 199 lb.	50 and 5
Less than 100 lb.	50

*No. 26 and lighter take special prices.

PHILADELPHIA

	Base per Lb.
*Plates, ¼-in. and heavier	3.00c.
*Structural shapes	3.00c.
*Soft steel bars, small shapes, iron bars (except bands)	3.00c.
‡Reinforc. steel bars, sq. twisted and deformed	2.955c.
Cold-finished steel bars	3.73c.
*Steel hoops	3.55c.
*Steel bands, No. 12 and 3/16 in., incl.	3.30c.
Spring steel	5.00c.
†Hot-rolled anneal. sheets (No. 24)	3.80c.
†Galvanized sheets (No. 24)	4.40c.
*Hot-rolled annealed sheets (No. 10)	3.20c.
Diam. pat. floor plates, ¼ in.	5.00c.
Swedish iron bars	6.25c.

These prices are subject to quantity differentials except on reinforcing and Swedish iron bars.

*Base prices subject to deduction on orders aggregating 4000 lb. or over.

†For 50 bundles or over.

‡For less than 2000 lb.

CLEVELAND

	Base per Lb.
Plates and struc. shapes	3.36c.
Soft steel bars	3.05c.
Reinforc. steel bars	*2.10c.
Cold-finished steel bars	3.40c.
Flat rolled steel under ¼ in.	3.51c.
Cold-finished strip	†3.20c.
Hot-rolled annealed sheets (No. 24)	4.16c.
Galvanized sheets (No. 24)	4.76c.
Hot-rolled sheets (No. 10)	3.26c.
Hot-rolled 3/16 in. 24 to 48 in. wide sheets	3.61c.
Black ann'l'd wire, per 100 lb.	$2.65
No. 9 galv. wire, per 100 lb.	3.00
Com. wire nails, base per keg	2.40

*Plus mill, size and quantity extras.

†Outside delivery 10c. less.

CINCINNATI

	Base per Lb.
Plates and struc. shapes	3.45c.
Bars, soft steel or iron	3.25c.
New billet reinforc. bars	3.10c.
Rail steel reinforc. bars	3.10c.
Hoops and bands, 3/16 in. and lighter	3.60c.
Cold-finished bars	3.70c.
Hot-rolled annealed sheets (No. 24)	4.25c.
Galv. sheets (No. 24)	4.85c.
Hot-rolled sheets (No. 10)	3.35c.
Structural rivets	4.35c.
Small rivets	55 per cent off list
No. 9 ann'l'd wire, per 100 lb.	$3.00
Com. wire nails, base per keg (10 to 49 kegs)	2.65
Larger quantities	2.50
Cement c't'd nails, base 100-lb. keg.	2.95
Chain, 1-in., per 100 lb.	8.35
	Net per 100 Ft.
Seamless steel boiler tubes, 2-in.	$17.89
4-in.	41.69
Lap-welded steel boiler tubes, 2-in.	16.61
4-in.	38.72

BUFFALO

	Base per Lb.
Plates	3.40c.
Struc. shapes	3.30c.
Soft steel bars	3.10c.
Reinforcing bars	2.10c.
Cold-fin. bars and sq.	3.55c.
Round and hex.	3.55c.
Cold-rolled strip steel	5.25c.
Hot-rolled annealed sheets (No. 24)	4.05c.
Heavy hot-rolled sheets, 3/16 in., 24 to 48 in. wide	3.67c.
Galv. sheets (No. 24)	4.65c.
Bands	3.57c.
Hoops	3.57c.
Hot-rolled unannealed sheets	3.32c.
Common wire nails, base per keg	$3.00
Black wire, base per 100 lb.	3.45c.

BOSTON

	Per Lb.
Beams, channels, angles, tees, zees	3.42c.
H beams and shapes	3.42c.
Plates—sheared, tank and univ. mill, ¼ in. thick and heavier	3.43c.
Floor plates, diamond pattern	5.18c.
Bar and bar shapes (mild steel)	3.25c.
Bands 3/16 in. thick and No. 12 ga. incl.	3.50c. to 4.50c.
Half rounds, half ovals, ovals and bevels	4.50c.
Tire steel	4.50c.
Cold finished rounds and hexagons	3.70c.
Cold-rolled strip steel	5.20c.
Cold-finished squares and flats	4.20c.
Blue annealed sheets, No. 10 ga.	3.25c.
One pass cold-rolled sheets No. 24 ga.	3.50c.
Galvanized steel sheets, No. 24 ga.	4.60c.
Lead coated sheets, No. 24 ga.	5.65c.

Prices delivered by truck in metropolitan Boston, subject to quantity differentials.

PACIFIC COAST

	Base per Lb.		
	San Francisco	Los Angeles	Seattle
Plates, tank and U. M.	3.55c.	3.70c.	3.55c.
Shapes, standard	3.55c.	3.70c.	3.55c.
Soft steel bars	3.60c.	3.70c.	3.55c.
Reinforcing bars	3.50c.	3.50c.	3.50c.
Hot-rolled annealed sheets (No. 24)	4.40c.	4.35c.	4.40c.
Hot - rolled sheets (No. 10)	3.75c.	3.80c.	3.75c.
Galv. sheets (No. 24)	5.00c.	5.05c.	5.00c.
Cold finished steel Rounds	5.95c.	5.95c.	4.75c.
Squares and hexagons	7.20c.	7.20c.	6.00c.
Flats	7.70c.	7.70c.	7.00c.
Common wire nails —base per keg less carload	$3.40	$3.25	$3.35

All items subject to differentials for

Conference Being Arranged by Code Authorities of Scrap and Steel

A CONFERENCE between the iron and steel code authority and the code authority for the scrap iron and steel trade is being arranged by officials of the NRA to consider code problems affecting both industries, according to Benjamin Schwartz, chairman of the scrap iron and steel code authority. A date for the conference is expected to be announced shortly. Mr. Schwartz has pointed out that the entire compliance program in the scrap iron and steel trade will be seriously handicapped until a conference between the two industries reveals the measures of cooperation that may be undertaken by the two code authorities in the enforcement of the scrap iron code.

"Operating costs for scrap iron dealers have been increased by the code as much as 100 per cent in certain sections of the country," Mr. Schwartz stated. "Scrap prices, which are beyond the control of the scrap iron dealers, have declined sharply in the last few months, while prices for finished steel and for pig iron, the other principal raw material entering into the manufacture of steel, have been increased and stabilized under the steel code. The 'direct dealing' practices of certain steel corporations have added to the difficulties of the scrap iron trade to comply with their own code and have seriously affected their ability to reemploy many people who would ordinarily be gainfully engaged in the collection, preparation and marketing of scrap. The complaints have become so bitter in many sections of the country that unless the two code authorities promptly enter into a frank examination of the situation in the full spirit of the NRA, nothing can prevent the filing of wholesale petitions for exemptions from the scrap iron code, because of the inability of large numbers of scrap dealers in various markets to observe the labor provisions in face of forces that tend to defeat the purpose of the NRA.

"I understand that several studies are being conducted at the request of steel companies to determine whether there will be a shortage of scrap within the next 10 years. When I was recently shown the charts prepared in one study, I advised the consultant that he had overlooked one important element in his mathematical predictions of scrap tonnages, and that element was the man who supplied the scrap. Unless the initiative of the small businessmen, who comprise the collection organization of the industry, is preserved, and unless they are given a full opportunity to perform their service to the steel industry, all calculations concerning the future supply of scrap iron may be easily thrown out of line, because scrap will not collect itself and must be gathered together by a far-flung human organization, operating in a free and open market."

Fabricated Structural Steel

Lettings in Good Volume—New Projects Higher

AWARDS of 28,000 tons are among the largest for any week this year and compare with 16,200 tons last week. Government dam work at Fort Peck, Mont., and at Bonneville, Ore., accounts for 9350 tons; the Semet-Solvay Co. placed 4000 tons for a plant at Baton Rouge, La. New projects of 14,650 tons compare with 12,300 tons in the previous week and 23,550 tons two weeks ago. Included in new jobs are 2700 tons for a bridge in M Street, Sacramento, Cal., 1600 tons for two bridges over Deception Pass, Washington, and 1100 tons for a distillery building at Linden, N. J. Plate awards of 19,460 tons were swelled by 17,760 tons for the bay crossing pipe line at San Francisco. New plate projects total more than 3100 tons. Structural steel awards for the week follow:

NORTH ATLANTIC STATES

Wellesley, Mass., 200 tons, physics-chemical building, to Lehigh Structural Steel Co.

Albany, N. Y., 145 tons, school No. 14, to Jas. McKinney & Son.

Callicoon, N. Y., 495 tons, Erie Railroad bridge, to American Bridge Co.

Wolcott, N. Y., 325 tons, grade and high school, to Smith & Caffrey.

Erie Railroad, 750 tons, bridge at Buffalo, to McClintic-Marshall Corpn.

Johnson City, N. Y., 300 tons, grade school, to McClintic-Marshall Corpn.

Lackawanna, N. Y., 200 tons, new plant for Spring Perch Co., to McClintic-Marshall Steel Corpn.

Parlin, N. J., 115 tons, building for E. I. du Pont de Nemours & Co., to Bethlehem Fabricators, Inc.

Carneys Point, N. J., 305 tons, buildings for E. I. du Pont de Nemours & Co., to Belmont Iron Works and American Bridge Co.

Scranton, Pa., 170 tons, State school, to Anthracite Bridge Co.

Philadelphia, 410 tons, Container Corpn. storage building, to Belmont Iron Works.

Bucks County, Pa., 750 tons, State highway bridge, to McClintic-Marshall Corpn.

Pennsylvania Railroad, 440 tons, shelter platforms at Philadelphia, to McClintic-Marshall Corpn.

Baltimore & Ohio Railroad, 400 tons, bridge at St. Dennis, Md., to McClintic-Marshall Corpn.

SOUTH AND SOUTHWEST

Hardeman County, Tenn., 250 tons, State highway, to Virginia Bridge & Iron Co.

Adams County, Miss., 125 tons, State highway bridge, to Virginia Bridge & Iron Co.

Vicksburg, Miss., 910 tons, viaduct approach for Vicksburg Bridge & Terminal Co., to McClintic-Marshall Corpn.

Newport, Ark., 710 tons, State highway bridges; 560 tons to McClintic-Marshall Corpn., 150 tons to St. Louis Structural Steel Co.

Van Buren County, Ark., 340 tons, highway bridge, to Kansas City Structural Steel Co.

Coleman County, Tex., 125 tons, to an unnamed Texas fabricator.

Wichita County, Tex., 225 tons, bridge, to American Bridge Co.

Baton Rouge, La., 4000 tons, Semet-Solvay Co., to R. C. Mahon Co.

CENTRAL STATES

Kalamazoo, Mich., 300 tons, bridge, to McClintic-Marshall Corpn.

Cleveland, 112 tons, building for Producers Milk Co., to Fort Pitt Bridge Works Co.

Warren County, Ohio, 170 tons, bridge at Morrow, to Burger Iron Co.

Pike County, Ohio, 640 tons, highway bridge, to Mount Vernon Bridge Co.

Brownstown, Ind., 250 tons, bridge spans, to Vincennes Bridge Co.

Chicago Heights, Ill., 240 tons, State highway bridge, to McClintic-Marshall Corpn.

Edgar County, Ill., 115 tons, bridge, to Mississippi Valley Structural Steel Co.

Williamson County, Ill., 128 tons, highway bridge, to Vincennes Bridge Co.

McDonough County, Ill., 100 tons, highway bridge, to Mississippi Valley Structural Steel Co., Decatur, Ill.

Fond du Lac, Wis., 100 tons, West Arndt Street bridge, to Vulcan Mfg. Co.

Milwaukee Road, 450 tons, bridges, to Wisconsin Bridge & Iron Co.

Avoca, Iowa, 350 tons, bridge, to Des Moines Steel Co.

WESTERN STATES

Limon, Colo., 315 tons, State highway bridge, to American Bridge Co.

Denver, 200 tons, State highway bridge, to Minneapolis Moline Power Implement Co.

State of Colorado, 500 tons, highway bridges in three counties, to unnamed bidders.

Cataldo, Idaho, 250 tons, highway bridge for Department of Agriculture, to McClintic-Marshall Corpn.

Fort Peck, Mont., 6900 tons, tunnel work for Fort Peck dam, to American Bridge Co.; Mason & Walsh Co., general contractor.

Wiota, Mont., 255 tons, electrical distribution system for Schulman Electric Co., Chicago, to Hansel-Elcock Foundry Co.

Southern Pacific Railroad, 350 tons, bridges, to American Bridge Co.

Salt Lake County, Utah, 100 tons, State overhead structure, to an unnamed bidder.

Redding, Cal., 750 tons, State bridge over Sacramento River, to Moore Dry Dock Co.

Torrance, Cal., 185 tons, building and runway for Columbia Steel Co., to Consolidated Steel Corpn.

Los Angeles County, Cal., 100 tons, specification No. 7851, to Youngstown Steel Car Corpn.

Bonneville, Ore., 2450 tons, dam, to McClintic-Marshall Corpn.

Waldport, Ore., 1000 tons, bridge, to Poole & McGonigle, Portland, Ore.

NEW STRUCTURAL STEEL PROJECTS

NORTH ATLANTIC STATES

Medway, Me., 190 tons, State highway bridge over Penobscot River.

Port Ivory, Staten Island, N. Y., 230 tons, warehouse for Procter & Gamble Co.

New York Central Railroad, 1000 tons, Central Avenue bridge at Albany, N. Y.

Binghamton, N. Y., 600 tons, post office; bids June 26.

Central Railroad of New Jersey, 270 tons, bridge in Somerset County, N. J.

Somerset County, N. J., 250 tons, State highway bridge over Raritan River.

Linden, N. J., 1100 tons, building for Distillers Co., Ltd.

Sharpsburg, Pa., 300 tons, brewery addition for Fort Pitt Brewing Co.

THE SOUTH

Mobile, Ala., 400 tons, building.

Bexar County, Tex., 480 tons, State highway bridge.

CENTRAL STATES

Jackson County, Ind., 237 tons, two bridges; Vincennes Bridge Co., low bidder.

Sault Ste. Marie, Mich., 800 tons, Ashmun Street bridge; bids close June 22.

State of Michigan, 830 tons, highway bridges.

State of Illinois, 2100 tons, highway bridges.

Oberlin, Ohio, 800 tons, auditorium for Oberlin College; preliminary estimates taken.

State of Iowa, 650 tons, highway bridges.

WESTERN STATES

Otero County, Colo., 350 tons, six State bridges; bids June 27.

Sacramento, Cal., 2700 tons, M Street bridge; State project.

State of Washington, 1600 tons, two bridges over Deception Pass.

CANADA

Walkerville, Ont., 175 tons, building.

FABRICATED PLATE

AWARDS

Edgewater, N. J., 400 tons, tanks for Valvoline Oil Co., to Chicago Bridge & Iron Works.

Kilgore, Tex., 500 tons, tanks, to Muskogee Iron Works, Muskogee, Okla.

San Francisco, 17,760 tons, bay crossing pipe line; 12,760 tons to Western Pipe & Steel Co. and 5000 tons to American Concrete & Steel Pipe Co.

Aruba, island near Venezuela, 555 tons of plates, shapes and bars, tower for refinery, for Standard Oil Co. of New Jersey; to Chicago Bridge & Iron Works.

NEW PROJECTS

Boston, 1249 tons, Brookline Avenue pipe line.

Vicksburg, Miss., 1400 tons, pontoons and pipe for United States Engineer Office, McClintic-Marshall Corpn. low bidder.

Two Rivers, Wis., 200 tons, 500,000-gal. elevated water tank; Pittsburgh-Des Moines Steel Co. low bidder.

Los Angeles, 250 tons, pipe line for Department of Water and Power, Western Pipe & Steel Co., low bidder.

Cast Iron Pipe

New York Department of Water Supply has announced that United States Pipe & Foundry Co. was low bidder on 200 tons of 6 to 12-in. water pipe and that Donaldson Iron Co. was low bidder on another project totaling about 200 tons of 6 to 12-in.

Moorefield, W. Va., asks bids until July 2 for pipe line for water supply and other waterworks equipment. Freeman J. Kyle and C. E. Tauszky, Charleston, W. Va., are consulting engineers.

Clearspring, Md., will soon take new bids for water pipe lines. Former bids rejected. Cost about $23,000. J. B. Ferguson Co., Hagerstown, Md., is consulting engineer.

Guthrie, Ky., plans pipe line for water supply and soon takes bids. Freeland, Roberts & Co., Nashville, Tenn., are consulting engineers.

Lexington, N. C., plans water pipe lines. Fund of $100,000 has been arranged through

Federal aid for this and other waterworks equipment. W. C. Olsen, Raleigh, N. C., is consulting engineer.

Crane, Tex., plans pipe line for water supply. Fund of $24,000 has been authorized for this and other waterworks equipment. Koch & Fowler, Central Bank Building, Dallas, Tex., are consulting engineers.

Wauwatosa, Wis., asks bids until July 2 for about 820 ft. of 6-in. F. A. Torkelson is city engineer.

Madison, Wis., closed June 20 on 17,113 lin. ft. of 12-in. and 5072 ft. 6-in. Class C water pipe.

Milwaukee has placed contract for air and miscellaneous piping for $2,500,000 extension to sewage disposal plant with Industrial Heating & Engineering Co., Milwaukee, at $115,214.

United States Engineers, Portland, Ore., have awarded 165 tons of 6-in. for Fort Peck Dam in Montana to an unnamed bidder.

United States Engineers, Portland, Ore., will take bids July 6 on 111 tons of 6 to 28-in.

South Pasadena, Cal., has taken bids on 160 tons for which United States Cast Iron Pipe Co. is low bidder.

Auburn, Cal., has taken bids on 4500 ft. of 4 to 8-in.

Whittier, Cal., has taken bids on 126 to 354 tons of 6-in.

Reinforcing Steel

Awards 10,115 Tons—New Projects 2450 Tons

Concord, Mass., 625 tons, State highway, to Earl C. Magoun, Arlington, Mass.

Woburn, Mass., 450 tons, glue factory, to Joseph T. Ryerson & Son, Inc., through the Austin Co.

Queens, N. Y., 160 tons, Interboro Parkway grade separation, to Concrete Steel Co.

Queens, N. Y., 120 tons, grade separation for Triboro Bridge Authority, to Capital Steel Co.

Camden, N. J., 400 tons, Section No. 3 of Philadelphia-Camden bridge, to Concrete Steel Co.; erroneously reported last week as awarded to Kalman Steel Corpn.

New York, 1000 tons, work in five boroughs, to Capital Steel Co.

Chicago, 300 tons, pavilion at Stock Yards, to Calumet Steel Co.

State of Idaho, 135 tons, highway work in four counties, to unnamed bidders.

State of Oregon, 100 tons, highway work in four counties, to unnamed bidders.

Bonneville, Ore., 6000 tons, dam, to Pacific Coast Steel Corpn.

Los Angeles, 100 tons, material for Department of Water and Power, to Soule Steel Co.

Norwalk, Cal., 100 tons, addition to Union High School, to an unnamed bidder.

San Francisco, 275 tons, Fifteenth Street sewer, to Truscon Steel Co.

State of Washington, 200 tons, highway work in three counties, to unnamed bidders.

Pullman, Wash., 150 tons, building at Washington State College, to Pacific Coast Steel Corpn.

NEW REINFORCING BAR PROJECTS

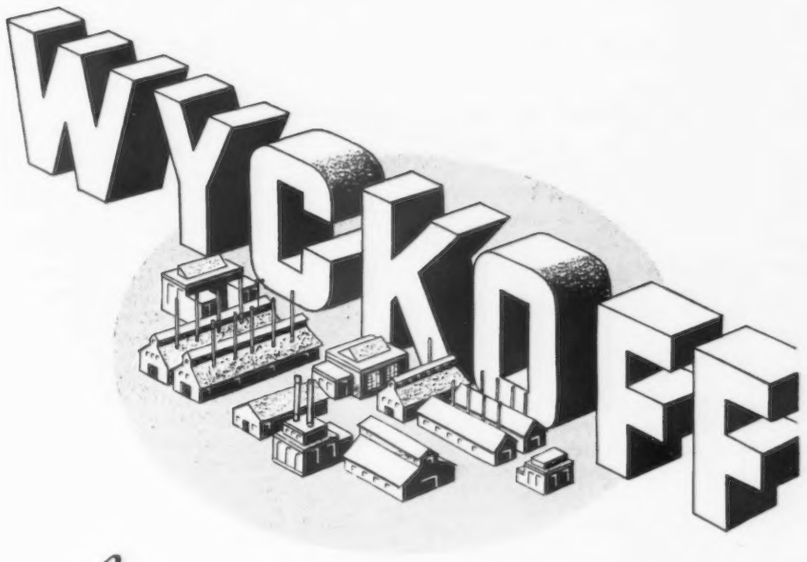
Worcester, Mass., is asking bids on a blanket tonnage of bars for 1934 requirements.

Rochester, N. Y., 100 tons, Elmwood Avenue bridge.

Chicago, 1000 tons, sewer project for Sanitary District; bids June 21.

Chicago, tonnage being estimated, sewage disposal plant for Sanitary District.

Chicago, 700 tons, reconstruction work at Union Stock Yards.



Industry's metallurgical guide

Laboratory standards prevail at every step in the production of **WYCKOFF STEELS** from the testing, selection and inspection of raw steel to the smooth polished finish, shape and dimension you require in your manufacturing processes. A good reason why you should make **WYCKOFF** your headquarters for Cold Drawn Steels, Turned and Polished Shafting, Turned and Ground Shafting.

WYCKOFF DRAWN STEEL COMPANY

GENERAL OFFICES: Ambridge, Pa.
MILLS at Ambridge, Pa. and Chicago, Ill.

State of Colorado, 100 tons, seven bridges in Douglas and Otero counties; bids June 27.

Bonneville, Ore., 550 tons additional, power house substructure; bids July 6.

Pipe Lines

Sun Oil Co., 1608 Walnut Street, Philadelphia, plans welded steel pipe line from refinery at Marcus Hook, Pa., to bulk oil storage and distribution plant, Newark, N. J. Application for permission has been made at latter city. Line will be built under direction of Middlesex Pipe Line Co.

Construction Service, Veterans' Administration, Washington, asks bids until June 29 for steel pipe lines for replacement of steam and return lines at institution, Jefferson Barracks, Mo.

Public Utilities Commission, San Francisco, closed bids June 12 for 62 and 72-in. welded steel pipe line, crossing San Francisco Bay, and for second unit of Hetch Hetchy Bay crossing division, about 102,000 ft., for water supply.

Tacoma, Wash., closes bids on or about June 30 for 18,900 ft. steel pipe (alternate bids on concrete pipe), 50 to 63-in., for water line, forming part of new trunk system, to cost about $1,000,000.

Guymon, Okla., let contract to B. & M. Construction Corpn., Petroleum Building, Oklahoma City, Okla., for 67,300 ft. of 2 to 6-in. steel pipe for municipal gas system. Cost about $50,000 with meter house and other equipment. F. E. Devlin, W-K-H Building, Wichita, Kan., is consulting engineer.

United States Engineer Office, Gimbel Building, Philadelphia, closed bids June 19 for seven lengths cast steel, 26-in. diameter (Circular 573).

Parsons, Kan., plans steel pipe line for gas distribution in connection with new municipal gas works. Special election will be held in August to approve bonds for $275,000 for project.

Steel Code Regulations and Resolutions Revised and Consolidated

THE amendments to the steel code which became effective on June 11 rendered ineffective or unnecessary some of the commercial resolutions heretofore adopted by the directors of the American Iron and Steel Institute under the code and made necessary certain changes in other resolutions and regulations. In rescinding obsolete resolutions and making the necessary changes in others it was deemed advisable to consolidate some of the resolutions now in effect and to renumber all of the others as they were consolidated or changed.

One new commercial regulation and 26 new commercial resolutions, which have been numbered A1 to A26, have therefore been adopted by the directors and become effective June 21. The new regulation and the consolidated resolutions embody all of rules formerly included in the 59 commercial resolutions previously approved which were not incorporated in the amended code. In addition the directors have approved resolutions A27 and A28 involving procedure not heretofore covered.

Resolutions Superseded by Code Amendments

Amendments to the steel code, which became effective June 11, entirely superseded the following 19 commercial resolutions which were formally rescinded on June 14:

No. 1, establishing special terms with respect to sales of pipe to jobbers;

No. 2, establishing special terms with respect to sales of pipe to jobbers in lieu of consignments of stocks;

No. 3, establishing special terms for Pacific Coast jobbers with respect to products produced at Eastern plants;

No. 4, establishing special terms with respect to sales of woven wire fencing to certain classes of purchasers;

No. 14; providing deductions in the base prices of cold-finished carbon and alloy bars in certain cases;

No. 15, providing for deductions in base prices for slack barrel hoops in certain cases;

No. 19, regarding sale of products to the United States Government or an agency thereof;

No. 21, requiring the filing with the secretary of the institute of copies of contracts existing prior to the acceptance of the code for all or part of purchasers' requirements;

No. 25, interpreting and construing certain provision of Schedule G of the code;

No. 26, approving allowances with respect to sales of pig iron for indirect export;

No. 28, concerned with pig iron shipped prior to Dec. 31 under contracts specifying delivery before Sept. 30, 1933;

No. 31, regarding date of payment of invoices;

No. 33, interpreting and construing the exception made in Section 9, Schedule E, of code with respect to rails, angle bars, rail joints, tie plates and track spikes sold to a railroad prior to June 1;

No. 34, interpreting and construing the exception made in Section 9, Schedule E, of code with respect to products required by a Government or a department or division thereof for a definite project or required by purchaser for a definite project undertaken pursuant to agreement with a governmental agency;

No. 36, regarding the filing of base prices for miscellaneous wire nails (not of standard sizes), telephone wire, armature binding wire and solid clothesline wire;

No. 40, providing for deductions in base prices of hot-rolled strip steel in certain cases;

No. 45, interpreting and construing the exception made in Section 9, Schedule E, of code with respect to steel rails and other rolled steel products sold prior to June 1 to manufacturers of rails, frogs, switches and other railroad special track work;

No. 53, regarding sales of products by members of the code to affiliated companies of such members which are also members of the code for manufacture of products under code;

No. 57, regarding sale of products as scrap for any other use by the purchaser than the remelting thereof.

Regulation No. 4 Supersedes Five Resolutions

Commercial regulation No. 4 supersedes resolutions No. 8 (except paragraph (e) of part 1 of such resolution which is superseded by new commercial resolution No. A18), 18, 37, 43 and 56, all of which have been rescinded. The new regulation authorizes reductions in the delivered prices of products delivered in whole or in part by water transportation, and reductions in the delivered prices of products sold for delivery in the South Atlantic, Gulf or Pacific Coast States and transportation charges on products sold for delivery at places in the Canal Zone or at ports in Alaska.

Regulation No. 2 has also been amended by the striking out of paragraph 6 which provides for deductions from the base prices of wire rods sold for delivery at certain points in Ohio, Pennsylvania, Indiana, Illinois and Texas and at San Francisco. Such deductions have been covered by the establishment of basing points for wire rods at Youngstown, Anderson, Ind., Galveston, Tex., and San Francisco.

What New Resolutions Supersede

The revised resolutions Nos. A1 to A26 provide no important changes in the old ones which they supersede. The new resolutions as renumbered are as follows:

No. A1, superseding resolution No. 5, permits the sale of pipe to jobbers at less than the published base price.

No. A2, superseding resolutions 9 and 32, establishes the minimum rate of interest to be charged and collected by members of the code, and the waiver of interest not exceeding 99c. in the aggregate on invoices paid by a purchaser in any month.

No. A3, superseding resolution 16, covers deliveries of products by truck at places not reached by all-rail transportation.

No. A4, superseding resolutions 20 and 52, establishes switching charges to be added to base prices for products delivered at basing points.

No. A5, taking place of resolution 22, provides for deductions from base prices of products sold for an identified construction project pursuant to quotations therefor to remain good for 60 days after an increase in the base prices for such products.

No. A6, superseding resolution 23, provides for modification of the provisions of the form of jobber's agreement relating to sales of imported products.

No. A7, superseding resolution 24, establishes allowances with respect to sales of products in intrastate commerce in California, North Carolina and Oregon, and remains in effect from Sept. 20, 1933.

No. A8, superseding resolutions 29, 38, 50 and 54, is concerned with delivered prices of products and the allowance of freight charges thereon, on the sale thereof to railroads and to trustees, mortgagees and lessors for use in the manufacture of equipment for railroad companies and to jobbers for direct shipment to railroad companies or to such trustees, mortgagees and lessors.

No. A9, superseding resolution 30, establishes allowance of discount for early payment of invoices.

No. A10, superseding resolution 39, covers agency agreements and remains in effect from Dec. 21, 1933.

No. A11, superseding resolution 41, covers the filing on and after Dec. 14, 1933, of base prices for descriptions of products not theretofore included in any base price list. It continues effective from Dec. 14.

No. A12, superseding resolution No. 42, provides for deductions from the base prices of pipe and other tubular products.

No. A13, superseding resolution 44, provides for the allowance of freight charges on products sold to the United States Government or a department or division thereof and for reductions in the delivered prices of products so sold.

No. A14, taking the place of resolution 48, provides for agreements between members of the code and other parties for the conversion of materials into products by such member of the code for such other parties, and continues effective from Feb. 5.

No. A15, superseding resolution 49, is concerned with the stamping of bills of lading and shipping orders to prevent the reconsignment of products without the consent of the member of the code selling such products.

No. A16, superseding resolution 51, is concerned with plates, shapes or bars intended for fabrication for an identified structure.

No. A17, superseding resolution 59, is concerned with freight charges to be added to the base price on sales of less-than-carload quantities of steel fence posts.

No. A18, superseding paragraph (e) of part 1 of resolution 8, authorizes reductions in the delivered prices for products delivered by trucks provided by the purchaser.

No. A19, superseding resolution 35, is concerned with reductions in the delivered price

for products on the sale thereof in less-than-carload quantities in certain cases where the purchaser takes delivery at a warehouse or a railroad freight station.

No. A20, superseding resolution 12, provides for reductions in the delivered prices for products sold in less-than-carload lots.

No. A21, superseding resolution 13, establishes reductions in the delivered prices of certain products sold for delivery at places in or about Detroit and at certain places in Ohio and Pennsylvania.

No. A22, superseding resolution 46, is concerned with quantity differentials on sales of merchant steel bars in quantities of less than 2000 lb. for delivery at places in Colorado, Montana, New Mexico, Utah and Wyoming, and expires on Aug. 31, 1934.

No. A23, superseding resolution 10, authorizes certain deductions from the base price for southern foundry pig iron.

No. A24, superseding resolution 55, is concerned with deductions from base prices for wrought iron pipe.

No. A25, superseding resolution 27, provides for deductions from base prices for standard pipe, waterwell casing and large O. D. pipe.

No. A26, superseding resolution 17, establishes qualifications of jobbers of tool steel, and is effective from Sept. 20, 1933.

President Delegates Secretary Perkins To Negotiate Steel Labor Controversy

(Concluded from Page 43)

that of the National Labor Board. The board itself, however, will be abolished, but its personnel may be perpetuated under the new board or boards. The Senator himself will retire entirely as a labor negotiator. He said that this is required under the joint resolution because the latter makes him a Federal officer and that, as such, he cannot serve in two capacities.

There is no confirmation of a report that the President is in negotiation with the American Iron and Steel Institute in connection with the steel union plan.

Urge Pittsburgh Plan

While it was in session with Miss Perkins the delegation of the Amalgamated gave out a letter addressed to the President urging adoption of the Pittsburgh convention plan which they said would settle the threatened strike. It was signed by members of the delegation and by Mr. Green.

The letter asked that this plan be presented to the management of the iron and steel industry "for acceptance and approval at the earliest possible date." The steel workers expressed the hope to the President that the steel industry will accept the proposal "as a just and fair plan of settlement of the existing dispute which so seriously threatens the future peace and prosperity of the industry."

The letter incorporated the Pittsburgh convention plan which is published in full on page 70 of this issue.

"One or the Other," Says Green

Mr. Green later declared that if the steel industry rejects the plan it is face to face with the establishing of a board under the terms of the compromise Wagner Labor Disputes Bill. He said he was not sure that provisions of the measure covered all the points included in the steel union's Pittsburgh Plan but was of the impression it does provide for the setting up of a board and the holding of elections as called for by the Pittsburgh proposal.

Seamless Pipe for Structural Purposes

MINIMUM prices on seamless steel pipe for structural purposes have been filed with the American Iron and Steel Institute for the third quarter:

Seamless Steel Pipe—Standard Weight, Plain Ends

Size	List Price per Foot	O. D.	Thickness	Weight per Foot Plain Ends
3 in.	$0.76½	3.500	0.216	7.575
4 in.	1.09	4.500	0.237	10.790

The list prices shown in the foregoing table are subject to the following schedule of basing discounts:

Product and Effective Date	Basing Discounts	Basing Point
3 in. black, June 11..	65-5-5%	Pittsburgh
4 in. black, June 11..	68-5-5%	Pittsburgh

Seamless Steel Pipe—Extra Strong, Plain Ends

Size	List Price per Foot	O. D.	Thickness	Weight per Foot Plain Ends
3 in.	$1.03	3.500	0.300	10.252
4 in.	1.50	4.500	0.337	14.983

The list prices shown in the foregoing table are subject to the following schedule of basing discounts:

Product and Effective Date	Basing Discounts	Basing Point
3 in. black, June 11..	62-5-5%	Pittsburgh
4 in. black, June 11..	65½-5-5%	Pittsburgh

Seamless Steel Pipe—Double Extra Strong, Plain Ends

Size	List Price per Foot	O. D.	Thickness	Weight per Foot Plain Ends
4 in.	$2.76	4.500	0.674	27.541

The list price shown in the foregoing table is subject to the following basing discount:

Product and Effective Date	Basing Discounts	Basing Point
4 in. black, June 11..	49-5-5%	Pittsburgh

The above discounts are subject to a net extra charge of 1½ points and apply to plain-end random-length pipe to be sold for direct shipment in carload lots only to manufacturing consumer on direct sale to such consumer, for structural use only.

The pipe sold under this schedule will be stenciled "structural" and must not be used for the conveyance of gas, steam, liquids or air.

Trade Publications

Metallic Resistors.—Driver-Harris Co., Harrison, N. J. Pamphlet giving the history, manufacture, and uses of metallic resistors for electric heating.

Electric Heating Units and Devices.—General Electric Co., Schenectady, N. Y. Large illustrated booklet showing installations of immersion, cartridge, strip, cast-in hotplates, metal melting pots, gluepots, industrial air heaters, and soldering irons. Replacement parts and constructions are given for all the devices.

Electrically Heated Furnaces.—Cooley Electric Furnace Co., Indianapolis, Ind. Leaflet describing electric heating installations particularly applicable to laboratory types of furnaces. The company is exclusive licensee of Wild-Barfield Electric Furnaces, Ltd., of London.

Industrial Chemicals.—E. I. du Pont de Nemours & Co., Wilmington, Del. Quarterly price list and a large amount of descriptive matter concerning all types of industrial chemicals.

Heating Elements and Units.—Harold E. Trent Co., Philadelphia. Folder giving physical characteristics, uses, and construction of immersion and strip heaters.

Steel Shafting, Squares, and Flats.—Union Drawn Steel Co., Massillon, Ohio. Booklet devoted to shafting to aid in selecting a grade best suited to particular requirements. Includes manufacture, testing, and physical characteristics of various grades of cold-drawn steel.

Industrial Helmet.—W. W. Sly Mfg. Co., Cleveland, Ohio. Folder showing construction and uses of Purair helmet for safeguarding against fume and dust-laden air.

Dowmetal.—Large illustrated booklet giving the properties, shop practices, specifications, and availability of Dowmetal alloys. Casting, welding, die casting, forging, blanking, shearing, riveting, and forming characteristics and procedures are fully described.

Gear Reduction Units.—Link-Belt Co., Chicago. New 32-page illustrated catalog, No. 1415, which covers single, double and triple reduction units of herringbone gear type, flexible coupling and general engineering data.

THERMAL conductivities of some 20 irons and steels have been determined by the United States Bureau of Standards for temperatures of 100 to 500 deg. C. (212 to 932 deg. F.) The stainless steels were included in the investigations, which are reported by S. M. Shelton, in Research Paper RP669 of the bureau, obtainable from the Superintendent of Public Documents, Washington, at 5 cents. High-alloy steels have lower thermal conductivities than low-alloy steels but the differences are smaller the higher the temperature.

Green Shows Amalgamated Way to "Save Face"

PITTSBURGH, June 18.—The deciding joust in this year's feature tournament between company unions and national labor unions will probably be held at Washington this week. The shift of the field of combat from the capital of steeldom to the national capital followed a strategic truce called by steel labor union heads at their recent conclave here.

After a two-day session last Thursday and Friday at Pittsburgh, the Amalgamated Association of Iron, Steel and Tin Workers withdrew, at least temporarily, its widely publicized threat to paralyze steel operations by calling a nation-wide strike unless the union were recognized by the steel managements. Under the clever verbal thrusts of William Green, president of the American Federation of Labor, who had been summoned to the meeting by the Amalgamated's president, Michael F. Tighe, in an astute move to keep the militant factions of the union in check, the former threatening temper of the combatants gave way to a rather conciliatory mood.

In his successful attempts to weld the opposing factions within the union into one mind, Green submitted the following four-point counter-proposal, which was finally accepted by the Amalgamated with minor amendments:

First, I recommend that an impartial board of three members be appointed by the President of the United States, clothed with authority to act as follows:

(a) To receive complaints and to investigate and adjust on the basis of the labor provisions of the code for the iron and steel industry;

(b) To mediate and conciliate in any dispute arising between employees and employers; to undertake to arrange for a conference for collective bargaining with any employer when so requested by representatives of employees selected under Section 7 (a) of the National Recovery Act.

(c) To offer their services as arbitrators in any labor dispute between employees and employers under said code, provided such dispute is voluntarily submitted for arbitration by both such parties;

(d) To hear and determine any matter of discrimination against or discharge of any employee in violation of Section 7 (a) of the National Industrial Recovery Act.

Second, in order that the workers employed in the steel mills may exercise the right of organization free from intimidation and coercion on the part of employers and to bargain collectively through representatives of their own choosing, the impartial board appointed by the President shall be clothed with authority to order and hold elections under the board's direction and supervision, and the representatives (amended to read: organization) selected by a majority of the employees to be recognized as the representatives of the workers for the purpose of collective bargaining.

Third, that all grievances and complaints regarding wages, hours and conditions of employment be settled through negotiations between the management and the representatives of the workers selected by the workers in the manner herein prescribed for collective bargaining purposes. Any questions in controversy which cannot be settled through collective bargaining shall be referred by mutual agreement to the impartial board herein provided for, for final determination.

Fourth, in the event the recommendations herein submitted are accepted by all parties at interest, the threatened strike to be declared off, with the understanding that all questions in controversy will be handled and adjusted in the manner and method prescribed herein.

In submitting his proposal, Green urged its adoption for submission to the President of the United States as the ultimatum of the convention. Such procedure, he stated, "would cause consternation to the steel corporations and mobilize public opinion behind you." Although studding his speech with caustic allusions to steel managements, Green advocated the use of sound judgment in dealing with "a powerful foe," further characterizing steel corporations as "the most miserable group of employers in the United States."

Strike Issue in President's Lap

After very little deliberation, the special convention was almost unanimous in its acceptance of Green's program. This move practically places the whole steel strike issue in the lap of President Roosevelt. And the move, cleverly engineered by Green, has placed the Amalgamated in a much more enviable position than it occupied at the outset of the special meeting last week. Ever since its original threat to tie up the steel industry by calling a strike, the association had been suffering from internal dissension that threatened to disorganize its ranks. Tighe, venerable president of the union, whose more conservative ideas had finally yielded to the belligerent strike views of the so-called rank and file group, found himself in a difficult position. But, in openly alining himself in self-defense with the radical group in the union, Tighe had not revealed his trump card—William Green.

The summoning of that laborite by the Amalgamated chief stemmed practically certain quick defeat for the association. Unable to prove a real case to the Washington officials early in June, the Amalgamated was "back on its heels." President Roosevelt had apparently not been convinced that the association represented an even fair minority of steel workers, and refused an audience at the White House. Psychologically, the union's threat to strike at a crucial point in the road toward recovery was ill-timed; it was out of step with public sentiment. And the impressive array of returns from the employee voting at almost every important steel plant in the Tri-State district proved conclusively to at least a few Washington officials and an impatient public that a heavy majority of steel workers were against striking. The Amalgamated's position at the beginning of the Pittsburgh meeting last week was therefore very shaky. The belligerent group, championed by younger men, including Forbeck and Spang, whose public utterances had not improved the Amalgamated's cause, was still ready to carry out the original threat to strike. The appearance of Green on the scene last Friday, however, was the turning point. Bringing with him national prestige and the oratorical weapons to bring into line a dissenting labor group, Green temporarily saved the Amalgamated's scalp and, incidentally, averted the possible overthrow of the present union president.

Green Confident of Acceptance

Green assured the Amalgamated delegates, almost with confidence, that his plan would be accepted by President Roosevelt. An audience will therefore be sought with the President this week at Washington by Tighe and other officials of the Amalgamated. Tighe and his party will leave Pittsburgh Tuesday for conferences there Wednesday morning with Green and Secretary of Labor Frances Perkins.

In the event of the President's disapproval of Green's amended plan, the Amalgamated's executive has authority to call a strike and to establish the date for it. At the conclusion of the meeting last Friday night, Tighe remarked: "It is a strange state of affairs when an industry can practically defy the United States Government. We are neither radicals nor Communists, but purely trade unionists, and our fight is for trade union principles."

Tighe's concluding remarks stamp the Amalgamated's recent strike threat as purely a professional move. With the exception of demanding a minimum wage of $1 an hour, minimum 30-hr. five-day week, for certain classes of labor, the union has offered no vantage point to the steel worker during all of its current strike activity. Apparently sensing the futility of alining themselves with a professional trade union that now represents a meager percentage of the nation's steel roster, American steel workmen have swept aside all doubt as to their sentiments by voting almost 90 per cent in favor of company unions.

Are cold facts to be unseated by professionalism at the forthcoming joust this week at the capital? This question is probably being weighed in the minds of a public aroused to keen interest in an issue that has been publicized far beyond the just proportions

of its importance. The Amalgamated's recent activities have been labeled logically as a smokescreen for forcing labor legislation. Whatever the case may be, 96 United States Senators have each received a copy of the following telegram, signed by company union presidents representing 75,000 workers in the Pittsburgh, Wheeling and Youngstown, Ohio, districts:

"On behalf of thousands of American steel workers organized in their own workers' unions and whom we represent as their elected leaders, we protest passage of pending labor legislation as dangerous to industrial peace and the security of our jobs. Current strike situation is not a bona fide movement to right even imaginary wrongs but a deliberate effort by professional labor organizers to intimidate Congress into passing of a measure that would deliver into their hands millions of American workers at so much per head. . . . Passage of this measure will only precipitate instead of mitigate bloody labor disturbances throughout the land at a time when peaceful continuity of production remains the only key to recovery. We demand the continuance of that protection which is stated in Section 7 (a) of NRA and which has been the right of Anglo-Saxon freemen for 1000 years. With steel workers today earning 70 per cent more than one year ago and with a 10 per cent wage increase recently in effect and with a large surplus of labor, there must not be a further threat to our jobs by labor agitators."

OBITUARY

HERMAN GREIG VEEDER, JR., assistant manager of erection in the Leetsdale, Pa., district for the McClintic-Marshall Corpn., was among the passengers lost in an airplane crash on his way back to the United States after several months as engineer in charge of McClintic-Marshall erection for the Ultramar Petroleum Co. near Buenos Aires. He entered the employ of McClintic-Marshall Corpn. after his graduation from Cornell University in 1925. He was 30 years old.

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WILLIAM T. S. JOHNSON, formerly vice-president and treasurer of the Bradford Machine Tool Co., Cincinnati, died of a heart attack at his home in that city on June 11, aged 69 years. He entered the machine tool industry more than 40 years ago as superintendent of the Bradford Mill Co., which later became the Bradford Machine Tool Co. He retired from business about six years ago.

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JOHN T. DILLON, president of the Lake Erie Engineering Co., Buffalo, died in New York on June 4, after a short illness. He was also president of the Struthers-Wells Co. and the Titusville Iron Works, Titusville, Pa. Mr. Dillon had been identified with the machinery industry for more than 30 years and was a director in a number of companies, including the Warren Axle & Tool Co., Warren, Pa.

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JOHN NELSON CHAMPLIN, New England sales manager of the Wickwire-Spencer Steel Co., died on June 13 after a brief illness. He was born in Worcester, Mass., 59 years ago.

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EDWARD FINK, consulting engineer in metallurgy, died at his home in Milwaukee on June 12, aged 65 years. He was a graduate of Michigan School of Mining, Houghton, Mich., and held Doctor of Philosophy degrees from the University of Berlin, Germany, and the University of Bern, Switzerland. Mr. Fink was widely known for his development of many processes in metallurgical chemistry.

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MAX RUESS, chief mechanical engineer, Filer & Stowell Co., Milwaukee, died June 13, aged 58 years. He was born in Germany and received his technical training at the University of Stuttgart in Wittenberg, coming to Amercia in 1907 to become associated with the Filer & Stowell Co. Shortly afterward he became chief mechanical engineer. Mr. Ruess was a member of the American Society of Mechanical Engineers.

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MARK L. TYROLER, manager of the New York office of Luria Brothers & Co., Inc., Philadelphia, died suddenly in New York on June 13, aged 65 years. Prior to joining the company over 20 year ago, he had been in business with his brother in Philadelphia.

For all Purposes
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Wire Rope Center
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Seale - Filler Wire
Warrington

1933 Rail Output Shows Slight Gain Over 1932

PRODUCTION of rails in the United States in 1933, according to a special statistical bulletin of the American Iron and Steel Institute, totaled 416,296 gross tons. This was but slightly more than 14,000 tons in excess of the rail production of 1932, which represented the lowest annual output of rails since 1866, when the first steel rails were rolled in this country.

Of the total of 416,296 gross tons rolled in 1933, 300 tons were made by the Bessemer process and 18,204 tons were rerolled from old steel rails. The remainder, 397,792 tons, were made by the open-hearth process. Girder and high T-rails for electric and street railways are included in the figures given above.

In poundage per yard, more than three quarters of the total tonnage was in sections of 100 lb. per yard and over, 154,007 tons being of 100 lb. and less than 120 lb. and 156,787 tons being of 120 lb. and over. This proportion is unusually in favor of the heavier rail section of 120 lb. and up and may indicate a trend to the heavy sections although total production was too small to be indicative.

Steel Sales Corpn., Chicago, has opened large metal distributing warehouse in former Rickenbacker Motors plant on St. James Street, Detroit. Warehouse will distribute steel and non-ferrous metals, including brass, copper, aluminum, Monel metal and pure nickel, nickel silver, phosphor bronze and zinc. F. W. Walters is vice-president in charge of the Detroit district.

... PERSONALS ...

FREDERICK B. HEITKAMP, general sales manager of the Cincinnati Milling Machine Co., has resigned to go with the Lyon Metal Products, Inc., Aurora, Ill., on July 1. Mr. Heitkamp is to become a member of the executive staff of the Lyon company, concentrating on marketing and sales research. A graduate of Rutgers in the class of 1917, Mr. Heitkamp became a member of the Milling Machine organization in 1921 with the title of advertising manager. He was promoted to assistant sales manager, sales manager and finally to general sales manager. Previous to joining the Cincinnati company he was with General Motors Export Corpn.

Mr. Heitkamp is a member of a number of associations including the National Industrial Advertisers Association, American Management Association, the Cincinnati Association of Industrial Marketers and the Sales Executive Council of the Cincinnati Chamber of Commerce. His numerous addresses and papers on sales technique and methods before the National Machine Tool Builders Association and the Chamber of Commerce of the United States and other organizations have earned for him a wide reputation as a public speaker.

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STANLEY A. KNISELY, who had been associated as director of advertising for the sheet steel trade extension committee of the National Association of Flat Rolled Steel Manufacturers from early 1927 until September, 1933, has been appointed sales promotion manager of the Republic Steel Corpn., with headquarters at Youngstown. A native of Canton, Ohio, Mr. Knisely started his career as a newspaperman. His first journalistic experience was with the Canton, Ohio, *Daily News*, of which he eventually became news editor. He subsequently went with the *Cleveland Plain Dealer*, having served with that paper as telegraph editor during the World War and later as city editor. Just prior to his connection with the National Association of Flat Rolled Steel Manufacturers, he was advertising manager and assistant secretary of the National Paving Brick Manufacturers Association.

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R. R. FAUNTLEROY, Moline Malleable Iron Co., St. Charles, Ill., was re-elected president of the Malleable Founders Association at the directors' annual meeting held in Cleveland, June 12. JOHN C. HASWELL, Dayton Malleable Iron Co., Dayton, Ohio, was chosen as vice-president, and ROBERT E. BELT was elected secretary and treasurer. CHARLES R. HOOK, president, American Rolling Mill Co., Middletown, Ohio, spoke at a luncheon meeting on "Employee Representation Plans."



F. B. HEITKAMP

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GEORGE P. THOMAS, president, Thomas Spacing Machine Co., Pittsburgh, sailed June 20 for a 60-day trip through Russia. During the visit he will inspect the steel mills and industrial plants, particularly several of his own installations in the Soviet steel mills.

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J. O. FERCH, advertising manager, Harnischfeger Corpn., Milwaukee, has been elected president of the Milwaukee Association of Industrial Advertisers; A. J. ANDREWS, Bucyrus-Erie Co., vice-president, and E. E. LASHWAY, Allis-Chalmers Mfg. Co., secretary-treasurer. L. P. NIESSEN, Cutler-Hammer, Inc., retiring president, has been elected to the board of directors.

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WILLIAM E. MCFEE, of the American Rolling Mill Co., Middletown, Ohio, has been elected president of the Cincinnati Association of Industrial Marketers.

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PAUL E. CARLSON has been made sales manager of the Lawton Engineering Corpn., Boston, which handles the air-conditioning line of the General Electric Co.

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A. EDWARD BARIT has been elected general manager of the Hudson Motor Car Co., Detroit. He continues as vice-president and treasurer. He has been with the Hudson company for 25 years. STUART G. BAITS has been made assistant general manager of the Hudson company. He has been associated with Hudson for 19 years and for some years has been its chief engineer. In addition to his new duties he will continue to head the engineering department.

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ROBERT E. BROOKE, formerly president of the Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., has been elected chairman of the board. JOHN E. MCCAULEY, heretofore vice-president and general manager, has been made president. GEORGE BROOKE has been elected a vice-president.

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L. E. CONNELLY, from 1900 to his retirement in 1931 as vice-president of the D. Connelly Boiler Co., Cleveland, has been appointed administration member of the code authority for the standard steel barrel and drum manufacturing industry, steel package manufacturing industry and washing machine parts manufacturing industry.

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WILLIAM E. UMSTATTD has been elected president of Timken Roller Bearing Co., Canton, Ohio, succeeding H. H. TIMKEN who resigned but retains his position as chairman of the board. Mr. Umstattd has been with the company since leaving the army in 1919 and advanced through various departments until he became factory manager and in 1932 was elected executive vice-president. HENRY H. TIMKEN, JR., was elected vice-president of both Timken Roller Bearing Co. and of Timken Steel & Tube Co.

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MYRON C. TAYLOR, chairman of the Board of the United States Steel Corpn., returned on the Europa on June 16 from a European sojourn.

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D. A. NEMSER, for the past five years chief metallurgist of the Pratt & Whitney Mfg. Co., Hartford, Conn., has been appointed development engineer of the International Nickel Co., Inc., with headquarters in Hartford, Conn. He was graduated from the Carnegie Institute of Technology in 1919. Prior to joining the metallurgical staff of the Pratt & Whitney company 10 years ago, Mr. Nemser was associated with the Atlas Steel Corpn. and later with the Henry Souther Engineering Co. In his new capacity, he will work with manufacturers throughout New England on problems involving nickel alloy steels, nickel cast irons and other alloys containing nickel.

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HERBERT FRANK, Sterling Wheelbarrow Co., Milwaukee, has been elected president of the Milwaukee Association of Purchasing Agents; THERNE CHILD, Allen-Bradley Co., vice-president; JOSEPH BODE, Briggs & Stratton Co., secretary; EDWARD JANKE, Joseph T. Ryerson & Son, Inc., treasurer, and SAMUEL WILSON, Kearney & Trecker Corpn., national director.

Production of Pig Iron and Ferroalloys in 1933

PRODUCTION of pig iron and ferroalloys in the United States during 1933, as reported officially by the American Iron and Steel Institute, was 13,345,602 gross tons, an increase of 51.97 per cent over the 8,781,453 tons produced in the preceding year. The 1932 total had shown a decrease of slightly more than 52 per cent under 1931 when production totaled 18,426,354 tons. Of the 1933 total, 13,000,719 tons was pig iron and 344,883 tons was ferroalloys.

Ohio was the largest pig iron producing state for the second consecutive year, having turned out 3,918,723 tons or 30.14 per cent of the total. As in 1932, Pennsylvania was second with 3,728,839 tons or 28.68 per cent. In prior years Pennsylvania had always been the leading producer.

Figures for 1933 as compiled by the institute are shown in the attached tables.

PRODUCTION OF PIG IRON AND FERRO-ALLOYS BY STATES, GROSS TONS, 1929–1933

States	1929	1930	1931	1932	1933
Mass., N. Y., N. J.	3,025,282	2,211,434	1,275,274	710,016	764,785
Pennsylvania	14,453,251	10,304,886	5,233,224	2,188,374	3,892,637
Maryland, Virginia	1,166,204	1,087,866	691,788	379,849	618,637
Alabama	2,709,881	2,394,725	1,671,205	667,374	905,908
West Va., Kentucky	864,201	864,824	755,919	305,659	538,067
Tennessee	138,753				
Ohio	9,795,648	6,804,862	4,189,311	2,411,863	3,955,261
Illinois	4,357,971	3,344,674	1,964,735	919,280	1,012,676
Indiana, Michigan	5,085,615	3,934,212	2,327,839	1,034,801	1,469,783
Minnesota	379,162	804,686	317,059	164,237	187,848
Iowa, Colorado, Utah	638,015				
Total	42,613,983	31,752,169	18,426,354	8,781,453	13,345,602
Pig iron	41,757,215	31,020,907	17,957,779	8,549,664	13,000,719
Ferro-alloys	856,768	731,262	468,575	231,789	344,883

PRODUCTION OF PIG IRON AND FERRO-ALLOYS BY STATES, SHOWING INCREASE, 1932-1933, GROSS TONS

States	1933	Per cent	1932	Per cent	Increase	Per cent
Pig iron:						
Pennsylvania	3,728,839	28.68	2,103,180	24.60	1,625,659	77.30
Ohio	3,918,723	30.14	2,387,028	27.92	1,531,695	64.17
Indiana, Michigan	1,469,783	11.31	1,034,801	12.10	434,982	42.04
Illinois	1,012,676	7.79	919,280	10.75	93,396	10.16
Alabama	900,170	6.92	652,898	7.64	247,272	37.87
New York	665,928	5.12	624,141	7.30	41,787	6.70
Maryland, West Virginia Kentucky, Tennessee	1,143,600	8.80	680,774	7.96	462,826	67.99
Iowa, Colo., Utah	161,000	1.24	147,562	1.73	13,438	9.11
Total pig iron	13,000,719	100.00	8,549,664	100.00	4,451,055	52.06
Ferro-alloys:						
Pennsylvania	163,798	47.49	85,194	36.75	78,604	92.26
New York, New Jersey	98,857	28.66	85,875	37.05	12,982	15.12
Ohio, Ill., Ia., Colo.	63,386	18.38	41,510	17.91	21,876	52.70
Md., Va., W. Va., Ala., Tenn.	18,842	5.47	19,210	8.29	*368	*1.92
Total ferro-alloys	344,883	100.00	231,789	100.00	113,094	48.79
Grand total	13,345,602		8,781,453		4,564,149	51.97
Pig iron	13,000,719	97.42	8,549,664	97.36	4,451,055	52.06
Ferro-alloys	344,883	2.58	231,789	2.64	113,094	48.79

*Decrease

PRODUCTION OF PIG IRON BY GRADES AND FERRO-ALLOYS BY KINDS, SHOWING INCREASE, 1932–1933, GROSS TONS

	1933	Per cent	1932	Per cent	Increase	Per cent
Pig iron:						
Basic	7,952,602	61.17	5,074,427	59.35	2,878,175	56.72
Bessemer and low-phosphorus	3,473,855	26.72	2,220,468	25.97	1,253,387	56.45
Foundry	1,055,622	8.12	811,484	9.49	244,138	30.09
Malleable	495,040	3.81	419,723	4.91	75,317	17.94
Forge	4,975	.04	1,558	.02	3,417	219.32
All other pig iron	18,625	.14	22,004	.26	*3,379	*15.36
Total pig iron	13,000,719	100.00	8,549,664	100.00	4,451,055	52.06
Ferro-alloys:						
Ferro-manganese Spiegeleisen	162,764	47.19	93,644	40.40	69,120	73.81
Ferro-silicon	154,736	44.87	124,708	53.80	30,028	24.08
All other ferro-alloys	27,383	7.94	13,437	5.80	13,946	103.79
Total ferro-alloys	344,883	100.00	231,789	100.00	113,094	48.79
Grand total	13,345,602		8,781,453		4,564,149	51.97

*Decrease

PIG IRON MADE FOR SALE BY GRADES AND BY STATES IN 1933, GROSS TONS

States	Basic	Bess. & low-phos.	Foundry	Malleable	Forge	All other pig iron	Total
New York, Md.	75,613	50,123	158,604	44,335		17	328,692
Pennsylvania	136,295	129,517	211,756	15,471	785		493,824
West Va., Ala., Tenn	65,799	2,036	469,441		4,086		541,362
Ohio	156,658	9,997	106,568	230,208		1,489	504,920
Ind., Illinois	1,138	16,533	26,664	102,457			146,792
Michigan, Iowa, Colorado, Utah	1,390		46,737			4,035	52,162
Total pig iron	436,893	208,206	1,019,770	392,471	4,871	5,541	2,067,752

METHODS BY WHICH PIG IRON AND FERRO-ALLOYS WERE CAST OR DELIVERED IN 1933, GROSS TONS

States	Molten condition	Sand cast	Machine cast	Chill cast	Direct castings	Total
New York, N. J., Maryland	890,766	54,904	425,875	10,410	17	1,381,972
Pennsylvania	2,775,761	2,516	961,236	152,025	1,099	3,892,637
Virginia, West Va., Ala., Ky., Tenn.	775,393	20,343	636,539	12,691	459	1,445,425
Ohio	2,993,944	3,813	952,191	233	5,080	3,955,261
Ind., Ill., Mich., Iowa, Colo., Utah	2,125,212	20,632	520,422		4,041	2,670,307
Total	9,561,076	102,208	3,496,263	175,359	10,696	13,345,602

METHODS BY WHICH BASIC PIG IRON WAS CAST OR DELIVERED IN 1933, GROSS TONS

States	Sand cast, machine cast, chill cast, etc.	Molten condition	Total
New York	87,488	310,936	398,424
Pennsylvania	620,204	1,751,987	2,372,191
Maryland, West Virginia, Kentucky, Ala.	138,437	1,151,616	1,290,053
Ohio	519,721	1,571,535	2,091,256
Ind., Ill., Mich., Colo., Utah	277,631	1,523,047	1,800,678
Total	1,643,481	6,309,121	7,952,602

METHODS BY WHICH BESSEMER AND LOW-PHOSPHORUS PIG IRON WERE CAST OR DELIVERED IN 1933, GROSS TONS

States	Sand cast, machine cast, chill cast, etc.	Molten condition	Total
New York, Maryland, West Va., Alabama	130,239	202,718	332,957
Pennsylvania	98,733	1,022,810	1,121,543
Ohio	80,689	1,328,953	1,409,642
Indiana, Illinois	40,558	569,155	609,713
Total	350,219	3,123,636	3,473,855

Highlights of the Industrial Development of the Soviet Union

(Continued from Page 33)

about 35,000 tons per day. Thus we see that the Soviet Union is rapidly approaching our present sub-normal rate of production.

The difference between the January, 1933, rate and the January, 1934, rate indicates an annual rate gain of about 2,500,000 tons. The program for the second Piatiletka contemplates approximately the continuation of this rate of growth.

Expansion in Terms of Furnaces

Five large new furnaces were started in 1933. These furnaces, together with two other smaller furnaces put in blast, represent an increase in rated capacity of 1,800,000 tons per year, or about 5000 tons per day, that is, an increase of approximately half of the entire pre-war capacity. There are now under construction nine additional "standard" 1000-ton blast furnaces, some of which will go into operation during 1934. In fact, No. 1 at Krivoirog was blown in in January, and No. 2 at Azovstal was blown in in February, 1934. The construction of additional furnaces of this type will be undertaken this year.

The story with reference to steel ingot production is similar to that of pig iron. It is shown in Fig. 3. There were started in the Soviet Union in 1933 twenty-eight open-hearths having a rated capacity of about 1,500,000 tons. There were also started 12 electric furnaces having a rated capacity of 100,000 tons. Three large new blooming mills were put into operation at Magnitogorsk (Urals), Dzerjinsky (Ukraine), and Tomsky (Ukraine). Nine other rolling mills were started, including the modern rail mill at Kuznetsk and the alloy mills at Zaporosche.

The New Steel Plants

The outstanding new steel plant of the Soviet Union is the Kuznetsk plant at Stalinsk, Siberia. The three blast furnaces in operation at this plant have a nominal capacity of about 2700 tons. Present output is about 1800 tons. No. 3 was only recently blown in. There are now six 150-ton open-hearths producing at present in excees of 1000 tons of ingots per day. A modern blooming mill and rail mill are in operation; a plate mill and merchant mill are under construction. It is expected to produce about 350,000 tons of rolled product in this plant in 1934.

At Magnitogorsk, in the South Urals, four large new blast furnaces have been built. The three operating furnaces have a nominal capacity of about 3600 tons per day. The present output is about 1800 tons per day. At present three 150-ton open-hearths are in operation producing about 600 tons of ingots per day. The blooming mill is now rolling these ingots to blooms and billets. As yet there are no finishing mills in operation.

A number of new steel plants are actively under construction. As noted previously, the first blast furnaces at some of these plants are now in operation. A continuous and accelerated growth of pig iron and steel ingot output is to be anticipated.

The growth of the oil industry is indicated in Fig. 4. Here it should be noted that the Soviet Union exceeded its plan during the first Piatiletka. It now enjoys second place in world output. Among the important recent accomplishments was the construction of the new pipe line from the oil fields at Baku on the Caspian Sea to Batum on the Black Sea.

Growth of Miscellaneous Industries

WE may now consider a few miscellaneous industries. In 1931 and 1932 Soviet plants produced 860,000 kw. of capacity in turbine generators. The largest unit they are able to produce at present is 50,000 kw. A new plant is being built which will compare in size with the General Electric turbine plants at Schenectady and at Lynn.

In 1928 there were about 19,000 automobiles and trucks in the U. S. S. R. These were all foreign make, many of them of ancient vintage. In 1933 there were about 75,000 automobiles and trucks. Of this number about 70 per cent were made or assembled in the Soviet Union. An idea of the growth of production of tractors, trucks and automobiles is given by the following table:

Production of Automobiles, Trucks and Tractors

	Tractors	*Autos and Trucks*
1929	.....	1,500
1930	20,000	8,400
1932	50,000	25,500
1933	73,000	49,700

It is hoped that by 1937 the annual output of trucks and automobiles will be about 200,000. The Soviet Union will then have less than 1,000,000 automobiles and trucks in service. While these figures look small when compared with American figures, the rate of increase in production has considerable significance.

The Soviet Union is rapidly increasing its production of machinery. Two large new plants for the production of heavy machinery are now starting operations, namely, the Ural Machstroy Plant at Sverdlovsk (North Urals) and the Kremashstroy at Krematorsky (Ukraine). There are a number of locomotive works, the largest being the new Lugansk Works, having a nominal capacity of 1000 locomotives per year.

Two large plants for the production of machine tools are under way, these plants being located at Moscow and at Nizhni Novgorod. About 70 per cent of all machine tools now in the Soviet Union have been added during the past five years. The following tabulation is of interest in this connection:

	World Output of Machinery (in percentage) 1928	1931
United States of America	57	37
Germany	14	14
Great Britain	11	15
France	2	4
U. S. S. R.	4	21

Mention should be made of the fact that there is a distinct eastward trend of industry. This parallels in a measure the westward trend which marked the development of industry in the U. S. A. There will be a marked development of metal manufacturers in the Ural Mountain area, centering around Sverdlovsk and another in Central Siberia, based on the Kuznetsk resources.

The degree of mechanization of farms is indicated in a general way by the fact that on Oct. 1, 1928, there were in use 27,000 tractors, having an average of 10½ hp. each. On Jan. 1, 1933, there were in use 148,500 tractors, averaging about 15 hp. each. About 70 per cent of the tractors in use were made or assembled in the Soviet Union.

Prior to the World War approximately 60 per cent of the national production of wealth was in agriculture and 40 per cent was in industry. The agricultural production now approximates pre-war figures but the industrial production has so increased that agriculture now represents only about 30 per cent of the national production of wealth, while industry represents about 70 per cent.

A most important element in an industrial development program is transportation. There has been only a moderate increase in railroad mileage since 1913. Although there has been but a slight increase in mileage of lines, there has been a decided in-

crease in tonnage of freight carried, as shown by the following figures:

Freight Carried by Railroads

1913	68 billion ton—km.
1928	93 billion ton—km.
1932	169 billion ton—km.

Here will be noted that the freight hauled was nearly doubled during the first Piatiletka. The number of passengers carried in 1932 was 2½ times the number carried in 1928.

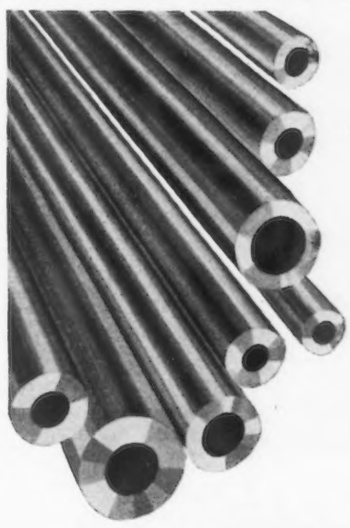
During the second Piatiletka, it is proposed to build about 7000 miles of new lines; to increase the number of freight cars (2-axle basis) from 550,000 to 800,000; to apply automatic brakes to all cars and automatic couplers to many of them; and to continue the work under way in the construction of heavier bridges, the placing of heavier rails, increasing the number of ties and reducing grades.

Comparison With American Plants

How do the new Russian steel plants compare with American plants? It may be said that in their general layout and in their broad principles and processes Russian plants follow American practice. In many details they differ decidedly. When we first viewed the program of constructing a number of entirely new plants on virgin sites, with relative freedom of layout, it seemed that a rare opportunity was offered to build ideal plants and to carry the principles of standardization to their maximum practical limit. Only in a measure have these possibilities been achieved. Many comprises have been necessary. The resulting plants will in general be good plants but they will not attain the ideals visualized.

Among the factors leading to this result must be mentioned the general inexperience of Russian engineers and designers. The Russian engineers deserve tremendous credit for the manner in which they tackled the extremely difficult task assigned to them. It was through no fault of their own that they had had no opportunity to gain experience in designing and operating modern steel plants. This inexperience is evidenced both in the design of new plants and in their excessive cost.

Another factor which has played an important part has been the policy of purchasing equipment in various foreign markets. In many cases political and economic factors governed rather than engineering desirability. Moreover it has been extremely difficult to combine American practice in general layout with European practice in physical equipment. Much European equipment is designed to meet quite different conditions.



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Five-Year Plan Epochal from Russian Standpoint

TO what degree was the five-year program a success? It seems to me that the five-year program had two primary purposes. Its first and most important purpose was to serve as a goal, a base for propaganda; a spur to sustained effort; and an inspiration for attack on the broad front of industrialization.

The other purpose, important but secondary, was that of a plan or schedule of progress. It was a skeleton about which industrialization should be developed; a medium for correlation of the expansion of mining, industry, agriculture and transportation.

It is my opinion that in its first purpose of the five-year plan should be considered quite successful. The people as a whole did give a moderate degree of cooperation throughout the period and they bore with surprisingly little complaint the many sacrifices and hardships which the program necessitated and imposed upon them.

In its second purpose the five-year plan was moderately successful. It was rather over-ambitious, particularly in view of world conditions which developed during the period. Too much was undertaken and too little finished. The Russians spread their resources of money, of equipment, of talent, too thin. A less spectacular but more conservative attack could have achieved superior results with great economy of money and less disturbance and suffering.

Through pressure brought to bear by the five-year plan, as a driving force, the Russian people accomplished a very creditable advance toward industrialization. This advance was developed around an over-ambitious and imperfect program. It was developed without the aid of extensive foreign loans. Russian industry now belongs to the Russian people.

From an American viewpoint the five-year plan was neither superb in its conception nor amazing in its accomplishment. From our viewpoint it might even be considered, in some aspects, as mediocre. But from a Russian viewpoint it was epochal. This is merely the beginning; and it is an auspicious beginning.

The five-year program has opened Russian eyes. They have learned of better living standards. They have observed Russian-made autos and trucks multiplying on their streets. They have awakened to their own possibilities. They have tasted the blood of modernism. They have been mobilized in a common cause, a constructive cause, a patriotic cause, and they have sensed the satisfaction which accompanies constructive effort toward a worthy goal. They are steeled to continue the advance, more willing, I believe, to continue than they were to start. The first five years were the hardest. The ball of tremendous inertia has started rolling. That start is of supreme significance; and the five-year plan accomplished it.

New Things in Materials and Processes

(Concluded from Page 27)

steels for ship plates is a fact. There are possibilities of a demand of large proportions in these particulars some day.

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Passing Technological Savings on to Consumer

THERE is still a large part of the public—very large in fact—that assumes that little of the savings accruing from technological advances have been passed on to the consumer. Commenting on this fact, a metallurgist who stands high in the profession, a former president of the American Society for Steel Treating, emphasized that all the discussion in respect to steel pertains merely to the price per pound paid for the material and disregards entirely the fact that the quality of practically all steels, and especially those purchased under S.A.E. and tool steel specifications, has shown a tremendous improvement.

All such betterment has required extensive revisions and refinements of practice—new processing—on the part of the steel maker. Increased equipment expenditures have been required. Besides higher quality there has been uniformity in that quality.

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Stainless Steel Knives for Cutting Fish

IT seems that in the slicing of fish into steaks, which is done on a very large scale in this country, there has been no little difficulty in finding a cutting material which will maintain its edge and not corrode.

Trials are now being initiated of stainless steel knives. Of course, the main objection to this material is its tendency to lose sharpness. A large heat-treating laboratory, experienced for many years in making saws and other cutting agents, is now experimenting with the hardening of a certain type of the stainless steels to learn whether this will meet the needs of the fish industry.

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Two Alloy Steel Developments Abroad

TWO developments abroad in alloy steels are of interest to American users.

Extrusion rams in forging practice frequently have to bear stresses of over 110,000 lb. per sq. in. at temperatures so high that they glow. Considerable research has been directed by a British company, Hadfield, Ltd., toward finding a suitable steel for such use. As a result of study and research, that company has decided that nickel-chromium or a nickel-chromium-molybdenum steel are best suited to meet such conditions. The company is stated now to be supplying such steels—the "Hecla" brands—for rams, punches and liners.

A large rotor ring weighing 23 tons has recently been cast in Germany. In it was incorporated a nickel steel. Tests show the product to have a tensile strength of 90,000 lb. per sq. in., a yield point of 51,000 lb. per sq. in., an elongation of 22.5 per cent and a reduction of area of 41.9 per cent after heat treatment.

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Cast Beryllium-Copper Tools Now Made

FROM time to time there has been allusion in these comments to the developments in beryllium-copper alloy products. It was stated at one time that certain tools—wrenches, chisels, hammers and the like—made of these alloys do not emit sparks. This was in reference to such tools made by the cold wrought process or even machined from bar stock.

Now it is announced that a western foundry is making tools of this type by casting them of the alloys. The venture is reported to be a success. The non-sparking tool has an important place in mining operations.

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Tests of Cast Iron

ONE of the outstanding contributions to technical knowledge during 1933 was the report of the sub-committee A-3 on cast iron of the American Society for Testing Materials. The impact testing investigations of Dr. J. T. MacKenzie showed that the drop test, with increasing heights of drop, was a valuable means to measure resistance to repeated impact. The sub-committee recommended that its members standardize a type of machine and carry on a test program. This, it is hoped, will result in a recommendation within a year for a tentative standard test of the kind.

The testing of cast iron for a long time has been a controversial question. New light from several sources is promised if the tentative plans of the American Foundrymen's Association and of the American Society for Testing Materials are carried out. It is not at all improbable that a joint session of these two societies on testing of cast iron will be a feature of the International Foundry Congress to be held in October, this year, at Philadelphia. Such a session was recommended by Committee A-3 of the A.S.T.M. at its meeting in March.

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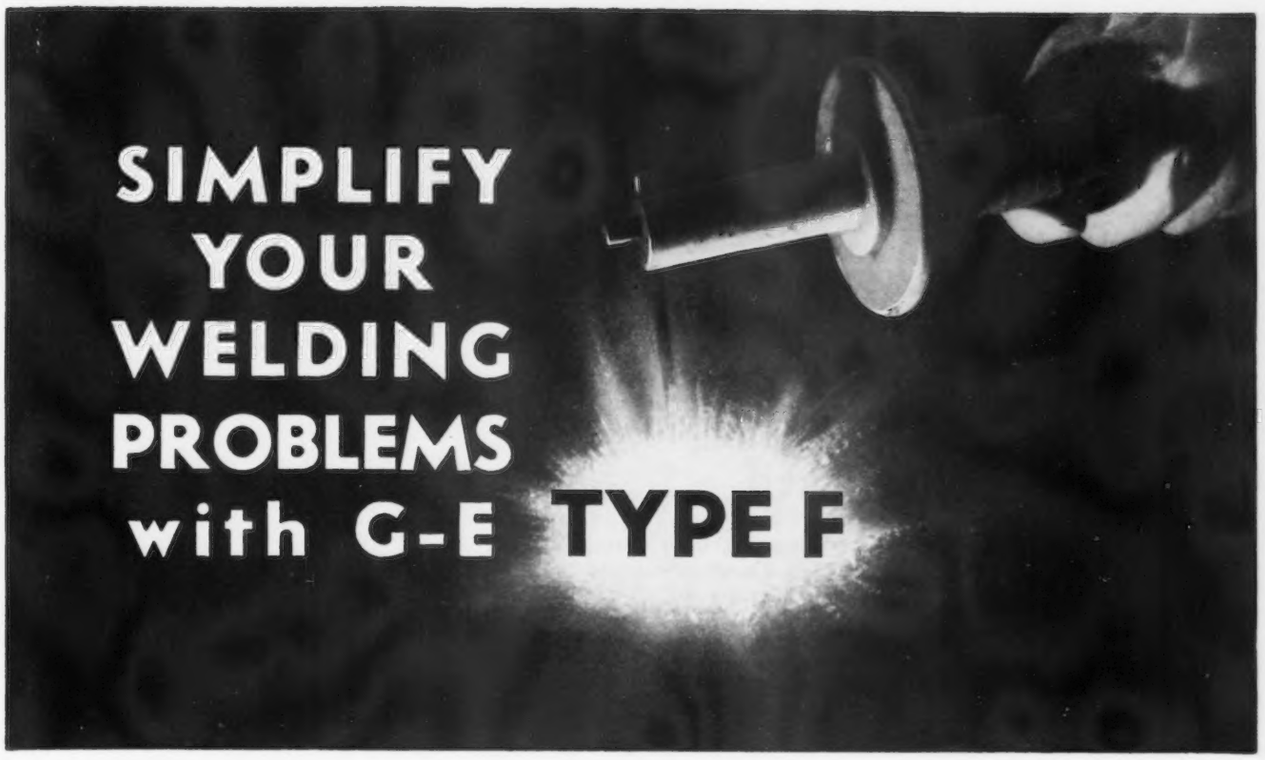
More About Heat-Treated Steel Rails

INTEREST and experimentation in the heat treatment of steel rails have not ceased and there have been one or two developments of importance.

A Canadian company has recently developed a special method of heat treating rails for which it claims distinct advantages. Very few details are as yet available. The principle involved is a careful regulation of the rate of cooling—delayed cooling—which, while it does not perhaps produce quite so hard a rail as by present methods of manufacture, confers certain properties which are said to improve the rail and render less liable the development of fissures and other sources of weakness.

A large American company not so long ago perfected a heat-treating process for steel rails which involves the application of quenching and drawing the product. Previously attempts to do this were not generally successful because of the difficulties in keeping the rails straight, or straightening them after the heat treatment. It is understood that the new method is a success. Due to economic and other conditions, very little progress in the application of this new treatment has been made.

Any heat-treating process necessarily adds to the cost of steel rails. And this has been a severe drawback to the adoption of any such improvement in rail quality. As long as present standard practice in making open-hearth rails produces a rail that is reasonably acceptable as to life, wear and efficiency, there is not much prospect of the adaptation of heat-treating methods to rail production. Eventually, however, this improvement will have to be recognized.



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YOUR general-purpose welding requirements, such as the fabrication or repair of machine bases, frames, miscellaneous cast-steel parts, etc., are all correctly met with this *lightly coated* G-E quality electrode.



G-E Type F welding electrodes were used by the Equitable Equipment Company, Inc., New Orleans, in the construction of 27 all-welded steel barges like those shown in the illustration.

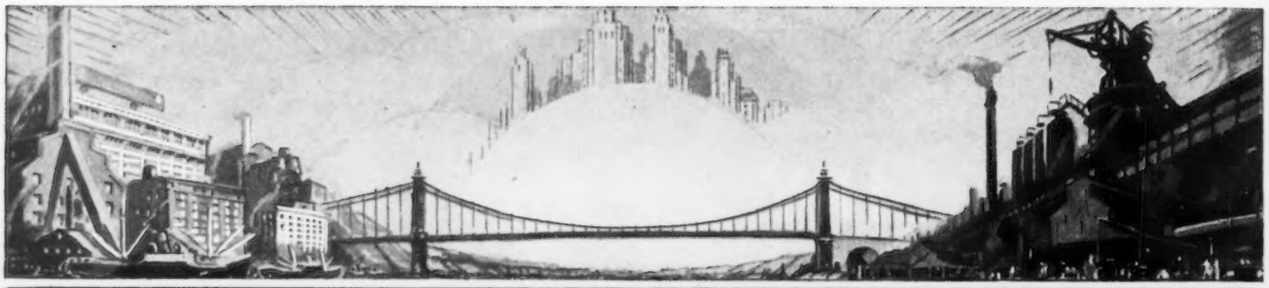
Type F produces welds which are strong, smooth, ductile, and easily machinable. It combines a fast rate of deposition with ample penetration, handles easily, and can be used in any position.

The arc-stabilizing action of the red flux coating permits great flexibility of arc length while retaining an even, smooth-flowing, stable arc. Although intended primarily for manual welding, Type F electrode gives equally satisfactory results on many automatic-welding applications.

You'll find it a real economy to keep a supply of Type F electrodes on hand at all times. The nearest G-E welding distributor will gladly supply them and give you any additional information regarding their use. Or, you can write to the nearest G-E sales office, or to General Electric, Schenectady, N. Y.

150-26

GENERAL ELECTRIC



PLANT EXPANSION AND EQUIPMENT BUYING

Decline in Machine Tool Orders Is Being Checked

NEW orders for machine tools and forging machinery during May, as reported to the National Machine Tool Builders' Association by 193 companies, declined only slightly, the index having stood at 45.9, as compared with 46.5 in the preceding month. The falling off was less than it has been in any month since January when the decline began. Export orders constituted a slightly higher percentage of the total than in April, having amounted to 23 per cent. Distribution of orders through the industry was reported to have shown further improvement.

Current business continues very quiet with both awards and new inquiries lighter. The automobile industry has not divulged its buying plans, but it is indicated that the Ford Motor Co. may begin to place business about Aug. 1. The Wheeling & Lake Erie Railroad is in the market for a 16-in. lathe, a 42-in. planer and a 22-in. brass working lathe.

NEW ENGLAND

Public Building Commission, City Hall, Newton, Mass., asks bids until June 29 for new municipal incinerator plant, including furnaces, stokers, conveyors, loaders and other equipment. Cost about $200,000 with machinery. Metcalf & Eddy, Statler Building, Boston, are consulting engineers.

New England Union Co., Warwick, R. I., has been organized by Norman W. and Arthur G. Norden, Norden Avenue, to manufacture pipe fittings, unions and kindred mechanical equipment.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until June 26 for 41,000 molded tip assemblies (Schedule 2745) for Portsmouth, N. H., Naval Station.

Board of Selectmen, Turners Falls, Mass., William T. Argy, 15 High Street, chairman, building commission, plans manual training equipment in new high school, for which bids will be asked on general contract in July. Cost about $150,000. H. E. Mason, 15 Prospect Street, Leominster, Mass., is architect.

International Automatic Coupling, Inc., Boston, has been organized by Anthony LoVolo and Francis P. Rock, 15 Prince Street, Jamaica Plain, Mass., to manufacture couplings and kindred fittings.

NORTH ATLANTIC

Continental Can Co., 1 Pershing Square, New York, has purchased about three acres on South Cherokee Street, Denver, improved with two factory buildings, for new plant. Works of R. Hardesty Mfg. Co., Denver, a subsidiary, manufacturer of tanks, culverts, cans and kindred equipment, will be removed to new location and capacity increased.

R. & R. Lighting Products, Inc., New York, has been organized by James G. Harris, 90-04 161st Street, Jamaica, L. I., and Jonathan Schneider, 113-04 107th Street, Richmond Hill, L. I., to manufacture lighting fixtures and equipment.

Reynolds Metals Co., Inc., 19 Rector Street, New York, manufacturer of metal foils, metal fixtures and kindred products, has arranged for purchase of former plant of Edison Lamp Works, Inc., Harrison, N. J., heretofore owned by General Electric Co. New owner will improve for new plant. Purchasing company operates plants at Louisville, Chicago, San Francisco and other points.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until June 26 for 300 half masts with filter cartridges (Schedule 2750) for Brooklyn Navy Yard; motor-driven centrifugal pumps and spare parts (Schedule 2680), motor-driven air compressors and spare parts (Schedule 2682); until June 29, turbine thrust bearings and spare parts (Schedule 2730) for Brooklyn and Charleston, S. C., yards.

Standard Brands, Inc., 595 Madison Avenue, New York, manufacturer of yeast and other food products, alcoholic liquors, etc., will begin superstructure for new 19-story plant at Oakland, Cal., part of unit to be used for storage and distribution. Completion is scheduled for fall. Cost about $1,000,000 with equipment.

Sound Auto Parts Corpn., New Rochelle, N. Y., has been organized by Herman H. Bose, 165 Mount Joy Place, and Percy A. Parker, 22 Stephenson Boulevard, to manufacture automobile parts and operate motor repair works.

Korfund Co., 48-15 Thirty-second Place, Long Island City, manufacturer of cork foundations and other cork products, and Coyne & Paddock, same address, manufacturer of kindred specialties, plan rebuilding part of plant, occupied jointly, recently destroyed by fire. Loss about $50,000 with equipment.

Board of Education, Park Avenue and Fifty-ninth Street, New York, has asked bids on general contract for new multi-story high school at Bayside, Queens Borough, to include manual training department. Fund of $2,500,000 has been arranged. W. C. Martin is architect for Board and superintendent of school buildings.

Gold Dust Corpn., 88 Lexington Avenue, New York, manufacturer of washing powders, cleansers, has plans for addition to branch plant at Baltimore. Installation will include boilers and auxiliary steam power equipment, tanks, kettles, etc. Cost about $200,000, of which close to $150,000 will be expended for machinery. Lockwood, Greene Engineers, Inc., Rockefeller Plaza, New York, is engineer.

Breeze Corpns., Inc., 24 South Sixth Street, Newark, N. J., manufacturer of stainless steel parts and equipment for aircraft and marine service, is arranging for lease of 5-acre tract at Newark Airport as site for new plant, initial project to comprise main two-story unit, 60 x 400 ft., and hangar building, 120 x 150 ft.; later two other structures will be built, each one-story, 275 x 300 ft., and 75 x 100 ft. Company will expand line of output to include light type airplanes and parts, and will use one of last noted units for this production. Cost over $200,000 with equipment. Frank Grad, Raymond Boulevard, is architect.

Atlantic Refining Co., 260 South Broad Street, Philadelphia, has approved plans for new bulk oil storage and distributing plant at Syracuse, N. Y. Cost close to $60,000 with tanks and equipment.

BUFFALO DISTRICT

Jamestown Metal Equipment Co., Jamestown, N. Y., manufacturer of metal office furniture, bank fixtures, hospital equipment, etc., has purchased controlling interest in Blackstone Mfg. Co., manufacturer of washing machinery and parts, with local plant, and will operate as a subsidiary. Production will be expanded.

Auburn Machine & Tool Co., Inc., Auburn, N. Y., has been organized by Andrew Hommel, 5 Hockeborn Avenue, and Frederick E. Short, 20 Vista Street, to manufacture tools, machinery and parts.

Ardeen Gold Mines, Ltd., Rochester, N. Y., recently organized, care of H. G. White, 212 Powers Building, representative, plans gold mining development on properties in Ontario, Canada, with installation of drilling, elevating, conveying and other ore equipment. Cost about $50,000.

OHIO AND INDIANA

Board of Education, Hillsboro, Ohio, asks bids on general contract until June 25 for three-story and basement junior and senior high school, to include manual training department. Fund of $175,000 has been arranged. E. C. and G. T. Landberg, 114 Garfield Place, Cincinnati, are associate architects.

Inland Mfg. Co., 15 Coleman Street, Dayton, Ohio, Division of General Motors Corpn., Detroit, has plans for new two-story and basement addition, 150 x 400 ft., largely for production of new automotive and mechanical refrigeration products. Cost about $325,000 with equipment. Smith & Chamberlin, Callahan Bank Building, are architects; Hilismith & Co., 108 East Third Street, are mechanical engineers. W. S. Whittaker is president and general manager.

Relay Motors Corpn., Lima, Ohio, manufacturer of automotive and mechanical equipment, has been acquired at a receiver's sale by J. G. Wray and E. F. Harsch, Warsaw, Ind., for $750,000. New owners are considering reorganization and resumption of operation.

Electric Auto-Lite Co., Champlain and Mulberry Streets, Toledo, Ohio, plans rebuilding part of plant recently damaged by fire and strike. Loss over $100,000 with equipment.

Paul Coal Co., Zanesville, Ohio, plans rebuilding of tipple at coal-mining properties recently destroyed by fire.

Premier Bronze Powder Co., Painesville, Ohio, manufacturer of metallic paints, etc.,



Increased Cutter Speed Means Increased Production–

SUNOCO HELPS YOU SECURE BOTH!

THE ability of a milling cutter to remove metal is heightened by increasing its speed, with the feed per minute remaining unchanged.

Cutter speeds are limited, however, by the heat generated by the removing of the metal. The higher the speed, the higher the temperature. Sometimes this heat becomes sufficient to draw the temper or burn the cutting edges of the milling tool.

High Temperature Problem Overcome by Sunoco

The problem then is to dissipate this heat and as a practical solution we suggest Sunoco Emulsifying Cutting Oil.

A copious flow of Sunoco over a milling cutter carries away generated heat. It also minimizes the amount of heat generated. It gives cutters longer life per grind; does away with frequent cutter changes.

Cutters Won't Burn; Chips Won't Seize

Use Sunoco and your cutters will not burn, chips will not seize. The cuts will be clean and even. Flood the work with Sunoco and prevent the grinding action of the chips on the finished surfaces.

Sunoco improves quality, increases output — a trial under your own operating conditions will convince you.

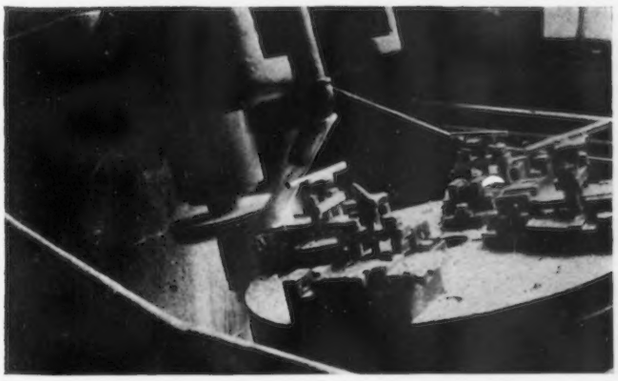
Operation: Milling bearing cap.
Machine: Oesterlein Heavy Duty Miller.
Material: Malleable iron.
Lubricant: 1 part Sunoco to 15 parts water.

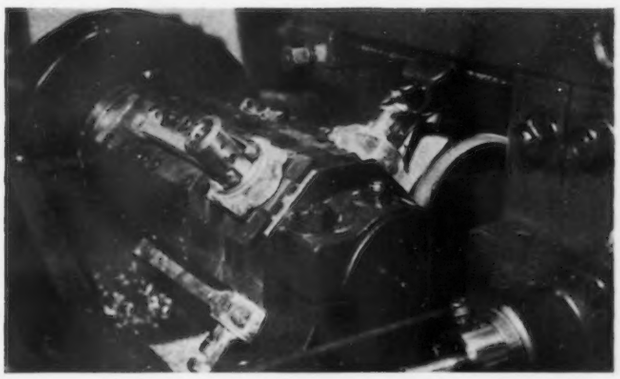
Courtesy of
Oesterlein Machine Co.
Cincinnati

SUNOCO
EMULSIFYING
CUTTING OIL

Operation: Milling bolt bosses and sawing off cap on connecting rod.
Machine: 3-24 Cincinnati Hydromatic.
Material: Steel forging.
Lubricant: 1 part Sunoco to 20 parts water.

Courtesy of
Cincinnati Milling Machine Co.
Cincinnati

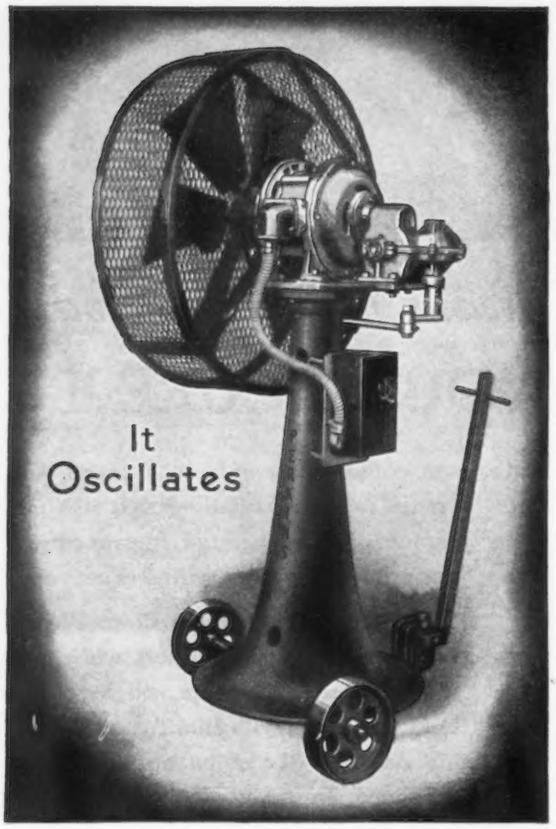




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Offices and Warehouses in more than 100 Cities

Subsidiary Companies • Sun Oil Co., Ltd., Montreal, Toronto • British Sun Oil Co., Ltd., London, England

PERKINS MAN COOLERS



HUNDREDS of users have found that PERKINS MAN COOLERS, not only bring comfort to men who work in hot places, but that their labor turnover is decreased and accidents are fewer. Made in stationary and oscillating types.

B. F. Perkins & Son, Inc., Holyoke, Mass.

has authorized plans for rebuilding part of two-story plant, recently damaged by fire. Cost about $80,000 with equipment.

Ralya Saw Corpn., Cincinnati, has been organized by Paul J. and John W. Sipes, care of Walter K. Sibbald, Chamber of Commerce Building, representative, to manufacture saws and kindred mechanical equipment.

American Welding & Mfg. Co., Warren, Ohio, manufacturer of welded steel products, plans immediate rebuilding of part of one-story main plant, 70 x 350 ft., recently destroyed by fire. Loss about $50,000 with equipment.

Merchants Distillery, Terre Haute, Ind., has approved plans for extensions and improvements, including new equipment. Cost over $60,000 with machinery. Thomas Beggs is president, and R. H. Rhyan, treasurer.

Board of Public Works, Goshen, Ind., asks bids until July 2 for equipment for extensions and improvements in municipal waterworks, including pumping machinery and accessories, 500,000-gal. steel tank on 150-ft. steel tower, pipe lines, fittings, etc. Appropriation of $150,000 is available. Charles Brossman, Chamber of Commerce Building, Indianapolis, is consulting engineer.

WASHINGTON DISTRICT

City Council, Roanoke, Va., has authorized purchase of 300 acres for new municipal airport, to include hangars, repair and reconditioning shops, oil storage and distributing plant and other field units. Cost over $70,000 with equipment.

Construction Service, Veterans' Administration, Washington, asks bids until June 28 for water tank and tower for institution at Canandaigua, N. Y.

Common Council, Martinsville, Va., plans installation of pumping machinery and auxiliary equipment, pipe lines, fittings, etc, for extensions and improvements in municipal water and sewage disposal systems. Special election has been called on June 28 to vote bonds for $100,000 for project.

Division of Purchases and Sales, Department of Commerce, Washington, asks bids until June 29 for aluminum alloy castings (Proposal 26165), also for transmitters in lots of 10 to 50 (Proposal 26181).

National Park Service, Department of Interior, Navy Department, Washington, asks bids until June 26 for new electrical distribution line and electric service equipment from bank of Frazer Creek to Ranger Station district, Schoodic Peninsula, Hancock County, Me.

Bureau of Supplies and Accounts, Navy Department, Washington, asks bids until June 26 for motor-driven traveling head planer and milling machine (Schedule 2771), two motor-driven double-housing planers (Schedule 2766), one motor-driven power squaring shear (Schedule 2772) for Washington yard; 10 portable pneumatic vertical surface grinders (Schedule 2767) for Norfolk, Va., Navy Yard.

SOUTH ATLANTIC

Camperdown Co., Inc., Greenville, S. C., has plans for power house at local cotton mill. Cost about $25,000 with equipment.

United States Engineer Office, Jacksonville, Fla., asks bids until June 25 for one steel derrick boat (Circular 868).

National Park Service, Department of Interior, Greensboro, N. C., asks bids until June 29 for equipment storage and utility building at Guilford Court House, National Military Park, Greensboro.

City Council, Jacksonville, Fla., plans extensions and improvements in municipal electric light and power system. Work will be carried out in connection with a public works expansion program, to cost $2,500,000. Special election has been called June 29 to approve bonds in that amount.

City Council, New Bern, N. C., plans extensions in municipal electric distributing lines and lighting stystem to Tuscarora and Fort Barnwell districts, about 10 miles. Cost close to $20,000 with equipment.

WESTERN PENNA.

Johnsonburg Radio Corpn., Johnsonburg, Pa., manufacturer of radio equipment and parts, plans two-story addition and improvements in present plant. Cost over $70,000 with equipment. Company is arranging for increase in capital from $250,000 to $925,000, part of fund to be used for purpose noted.

Appalachian Electric Power Co., Charleston, W. Va., has secured Federal license for new hydroelectric generating plants on Big Kanawha River at Lock No. 2, near Marmet, W. Va., and Lock No. 3, London, W. Va., on which dam construction was recently begun. New plants will cost about $4,000,000, including transmission lines, substations, switching stations and other structures. Company is also planning new power plant at Winfield dam, same river.

Uniontown Distilling Syndicate, Uniontown, Pa., is arranging financing for $789,750, instead of smaller sum previously noted in these columns, large portion of fund to be used for extensions and improvements, including installation of new equipment. M. E. Minert and Joseph K. Oglovee are heads.

SOUTH CENTRAL

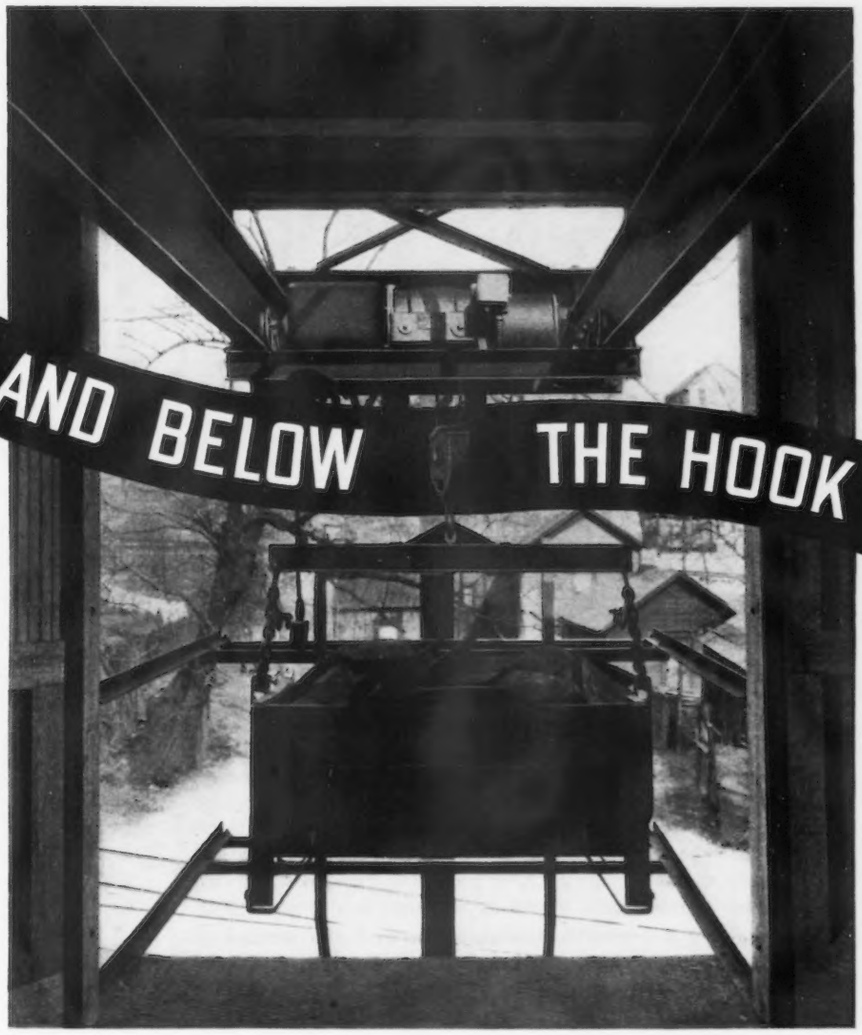
Cuban-American Distillers, Inc., 100 Poydras Street, New Orleans, has plans for new works, comprising main two and three-story distillery, and one-story tank house, storage and distributing unit. Cost about $70,000 with equipment.

Director of Purchases, Tennessee Valley Authority, New Sprankle Building, Knoxville, Tenn., asks bids until June 25 for one to eight tractors, 30 to 35-hp., with double drum winch and side mounted boom, 20 to 30 ft. long, cables and accessories; until June 26, for structural steel frame for hydrator unit, Nitrate plant No. 2, Sheffield, Ala. Plans are being arranged for construction of four new power dams to cost about $48,000,000 in conjunction with hydroelectric power development at Muscle Shoals, Ala., on Clinch River, Tenn., and other points in Tennessee Valley district.

Town Clerk, Irvington, Ky., asks bids until June 25 for equipment for municipal water system, including pipe lines, fittings, etc. Westcott, Thornton & Sargent, Cary Building, Owensboro, Ky., are consulting engineers.

Schmutz Metal Refining Co., Louisville, has been organized by Julius Schmutz, Louisville,

ABOVE AND BELOW THE HOOK



"Above the Hook" problems are solved by the correct combination of Osborn Tramrail units.

"Below the Hook" problems are solved by the correct Osborn-designed Grab equipment.

TO OVERLOOK possibilities of reducing costs through adoption of better materials handling methods is the same as ignoring opportunities for increasing profits. . . . Right now there may be materials handling operations in your plant that can be changed from loss-producers to profit-makers by the correct application of Osborn Tramrail units. . . . Check up on your materials handling methods. But before you invest in materials handling equipment, INVESTIGATE Osborn Tramrail Systems!

THE OSBORN MANUFACTURING COMPANY
5401 HAMILTON AVENUE, CLEVELAND, OHIO, U.S.A.

NRA

OSBORN
TRAMRAIL SYSTEMS



Specify B & L Shafting for Exacting Service

True roundness and straightness are developed to highest precision standards in B & L Shafting. You will find this confirmed in the most exacting service conditions where concentricity is so necessary in maintaining perfect balance and alignment in shafting applications.

With a plant equipped for accuracy and provided with modern facilities for the production of quality steels, we are able to supply super-grades of shafting with uniformly smooth finish free of surface blemish and closely adhering to standard tolerance or special accuracy. Our ground shafting is admirably adapted for exposed uses, where appearance is a major factor.

B & L Shafting is promptly available—*turned* and ground or polished, *drawn* and ground or polished—in standard or special analysis and in the heat-treated or untreated condition. We invite your inquiries on shafting problems.

Cold Drawn Bars
Extra Wide Flats

BETTER MADE STEELS
LABORATORY TESTED

Special Sections
Alloy Steels

BLISS & LAUGHLIN, INC.

HARVEY, ILL. *Sales Offices in all Principal Cities* BUFFALO, N.Y.

and associates, capital $30,000, to operate local refinery.

McPherson & Foster Co., Evansville, Ind., manufacturer of wire and wire-bound boxes, has acquired former plant of Chero-Cola Bottling Co., Selma, Ala., for new branch plant.

MIDDLE WEST

Knapp-Monarch Co., Belleville, Ill., manufacturer of electrical appliances and equipment, has leased building at Bent Avenue and Pontiac Street, St. Louis, for new plant for increased capacity.

Hayes Custer Stove Co., Bloomington, Ill., manufacturer of stoves, ranges and parts, has begun construction of one-story addition.

Master Parts Mfg. Co., 183 South Dearborn Street, Chicago, has been organized by Nathan Remington and William G. Persky, to manufacture automobile parts and equipment.

Swan Oil Co., 5 West Commerce Street, Duluth, Minn., has plans for new bulk oil storage and distributing plant. Cost over $30,000 with equipment. A. D. Swan is head.

Construction Service, Veterans' Administration, Washington, asks bids until June 29 for hot-water tanks for institution at Milwaukee.

Cudahy Packing Co., South St. Paul, Minn., meat packer, with headquarters at Chicago, has asked bids on general contract for addition to local plant. Cost over $40,000 with equipment.

City Council, New Ulm, Minn., plans extensions and improvements in municipal electric light and power plant, including new Diesel engine and auxiliary equipment. Cost about $30,000. Louis A. Breneman, Builders' Exchange Building, St. Paul, Minn., is consulting engineer.

Lloyd Steel Cruiser Co., 2420 South Halsted Street, Chicago, has been organized by Lloyd Simonson and John T. Emery, to manufacture steel boats, parts, etc.

Minnesota Valley Canning Co., Le Sueur, Minn., and Central Wisconsin Canneries, Inc., Beaver Dam, Wis., associated, are considering erection of new multi-unit canning plant near Dayton, Wash., including steam power house, machine shop and other mechanical departments. Cost over $150,000 with equipment.

Air Conditioning Equipment Corpn., 257 East Keefe Avenue, Milwaukee, is transferring plant and offices to larger quarters at 1317 North Third Street. Company manufactures two general types, domestic and commercial.

Twin-Flex Corpn., Detroit, manufacturer of third axle units for Ford and Chevrolet motor trucks, has moved plant and office to Milwaukee, where larger quarters have been leased at 2161 South Fifty-fourth Street. Immediate equipment needs have been filled but further extension of production is in early prospect. George Mueller is manager.

Menasha Brewing Co., Menasha, Wis., has been organized by E. G. Sonnenberg, Claude Mayer and E. W. Forkin, all local, to rehabilitate old Menasha brewery at estimated cost of $75,000. New equipment will be installed.

SOUTHWEST

United States Engineer Office, Kansas City, Mo., asks bids until June 26 for lock nuts, junction boxes, cable terminals, bushings, conduit, screws, reflector lights and other supplies (Circular 160).

M. K. Goetz Brewing Co., Sixth and Albemarle Streets, St. Joseph, Mo., has asked bids on general contract for new three and six-story and basement plant, 105 x 350 ft., on site recently acquired at Kansas City, Mo. Cost about $450,000 with equipment. George L. Lehle, 111 West Washington Street, Chicago, is architect and engineer.

N. W. Dunham, Seligman, Mo., is at head of project to operate new plant for platinum and radium ores in Boston County, Ark., and plans early purchase of mining, conveying, screening, elevating and other equipment. Estimated cost over $30,000. Company will be organized to carry out development.

Board of Education, Chickasha, Okla., plans manual training department in multi-story addition to high school, for which bids will be asked on general contract in July. Cost $250,000. Bond issue in that amount has been sold. Paul Harris, Chickasha, is architect.

St. Louis Public Service Co., 3869 Park Street, St. Louis, operating local traction system, has let general contract to McKelvey-Felix Construction Co., 722 Chestnut Street, for one-story equipment service and repair building. Cost over $25,000 with equipment. Company has secured permission to use fund of $1,098,700 for extensions and improvements in system, including purchase of new operating equipment.

Common Council, Farmersville, Tex., asks bids until July 6 for equipment for municipal water system, including pumping machinery, pipe lines, fittings, etc. Fund of $51,000 has been arranged. Myers, Noyes & Forrest, Tower Petroleum Building, Dallas, Tex., are consulting engineers.

MICHIGAN DISTRICT

Marx Brewing Co., Wyandotte, Mich., has plans for one-story addition for expansion in mechanical bottling works. Cost over $30,000 with equipment.

Mount Clemens Sugar Co., Mount Clemens, Mich., has let general contract to Henry Weber Construction Co., Bay City, Mich., for one-story addition to beet sugar mill for storage and distribution. Cost about $30,000 with equipment.

Ekhardt & Becker Brewing Co., Orleans and Winder Streets, Detroit, has let general contract to Adler Construction Co., 10 Parkhurst Street, for six-story and basement addition for storage and distribution. Cost about $100,000 with equipment. Paul Tilds, 2539 Woodward Avenue, is architect. August H. Eckert is president.

Jensen-McNeill, Inc., 2421 Smith Avenue, Hamtramck, Mich., has been organized by J. P. Jensen, 9810 Wisconsin Avenue, Detroit, and associates, to manufacture motor truck bodies and kindred equipment.

Tyler Sales Fixture Co., Niles, Mich., manufacturer of store fixtures and equipment, has approved plans for one-story addition, 60 x 140 ft. Cost about $25,000 with equipment.

Do you warm to the "feel" of FINE MACHINERY ?



. . . then step right up here!

HANDLE the controls of this new Elwell-Parker Gas Truck—feel its instant response; its unquestioning obedience. Run your eye over its clean, sturdy lines. Note the clearance beneath the platform—nothing to catch or foul as the Truck goes over toe-plate to gangplank or into freight car, or rides over the top of a ramp.

Every inch of it sparkles with correctness in industrial power truck building: beginning more than 25 years ago with Electrics; then with Gas Electrics; now with a far-reaching line of straight Gas. One user tells us that he ran an Elwell-Parker Gas Lift Truck 14 hours a day, every day, for 14 months—with no outlay except for gasoline and oil. *Fourteen hours a day includes heavy overtime and night work.*



Elwell-Parker Gas Trucks retain all the valuable characteristics of Elwell-Parker Electrics, plus such exclusive features as:

1. Simple construction.
2. Speedy pick-up; exceptionally powerful for climbing steep ramps and always under complete control.
3. Quiet operation.
4. Rugged unit design.
5. Super-abundant power.
6. Stable travel.
7. Constant performance; always ready when needed, whether for routine haulage or for emergency service.

The Elwell-Parker Sales Engineer nearest you will gladly show how you, too, can handle heavy loads with speed and economy. A line to us will put you quickly into touch with him. The Elwell-Parker Electric Company, 4225 St. Clair Avenue, Cleveland, Ohio.

New ELWELL·PARKER *Gas trucks*

Labor on the Automotive Front

(Continued from Page 21)

centered at Detroit and Flint, but covered such automobile manufacturing centers as Pontiac, Lansing and Toledo. That this campaign, which has been a continuous affair, has met with some measure of success cannot be denied. Whatever success it has achieved is attributable, in the opinion of a Federation member, to the cumulative psychological effects of the depression and to the NRA, the latter because of a feeling by workers of protection against discrimination and because of governmental sanction of a program of unionization.

For obvious reasons the A. F. of L. has not thought it wise to make public its total membership in the automobile industry. However, it is known that it gained its greatest numerical strength in the city of Flint, and it is believed that the paid members there never have exceeded 7000 out of a working force in five General Motors plants of 42,000.

Flint As a Hot-Bed

Flint has been the hot-bed of labor trouble in the automobile industry and the most lucrative field for union activities because (1) it is a small city which is more easily organized than a large city and has fewer outlets for employees' interests; (2) it is almost exclusively a General Motors city (Chevrolet, Buick, AC Spark Plug, Fisher Body) and therefore all automobile workers are employed by the same corporation; (3) the first organizer sent to Flint by the Federation, Jack Anderson by name, did an unusually efficient job (the Federation more recently has shifted him to other fields, after his main work in Flint had been accomplished); and (4) managements, in some cases, are understood to have assumed an arbitrary attitude at first which aided the Federation by alienating hundreds of workmen.

It is hardly necessary to describe in detail the way in which the A. F. of L. organized its forces in the automobile industry. It realized at the beginning that if it clung to the traditional craft union structure which it had built in many lines of industry, it couldn't get far in its automotive campaign. Accordingly it organized a so-called federal or vertical union taking in all of the workers in a single plant as members of local chapters.

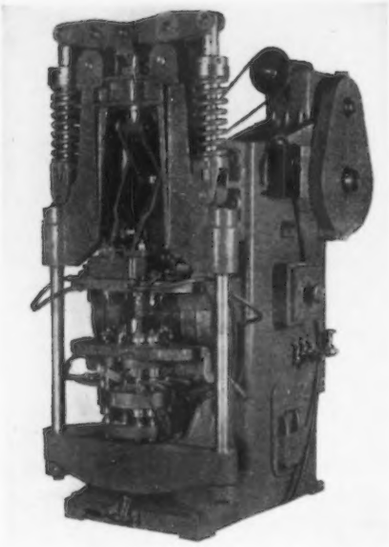
With the adoption of this program, it has not entirely escaped friction between the federal automobile union and craft unions operating in the automobile industry. The federal union has run afoul of such long-established A. F. of L. affiliates as the machinists' union and the metal polishers' union, so that competition exists within the Federation's own ranks. It is difficult to believe that union officials have other than their own selfish interests at heart when they engage in jurisdictional squabbles. All of this is apart from the competition of the Mechanics Educational Society of America, comment on which will be made later.

Lack of Class Consciousness

A lack of class consciousness on the part of automobile workers is one of the chief obstacles in the path of the A. F. of L. in its attempted unionization of the industry, according to the private admission of a Federation leader. Therefore the Federation is setting out definitely to arouse a class

(Continued on Page 86)

FORTY-EIGHT YEARS OF WELDING EXPERIENCE



300
WELDS PER MINUTE
cure this
brake maker's
PRODUCTION
HEADACHE

How to step-up production and cut costs was the problem that bothered an auto brake manufacturer. A standard No. 4 Thomson-Gibb Welding Press equipped with special fixtures* was the solution. It makes 11 welds at a stroke, 30 strokes a minute to turn out welded dust shields faster, cheaper and better than ever before.

A series of four standard Thomson-Gibb Welding Presses covering a wide range of speeds and capacities makes it easy for Thomson-Gibb to supply a Press Welder to fit almost any welding job at minimum investment.

For specific answers to your welding questions fill in the memo below and attach it to your letterhead.

*Unusual conditions made this problem difficult. The job involved joining a 3/32" stamping to a ring which varied in thickness from .044 to 1/16". Individually mounted and cushioned electrodes automatically take care of variation in thickness of the work, insure even pressure and uniform welds.

THOMSON-GIBB ELECTRIC WELDING CO.

Thomson-Gibb Electric Welding Company
162 Pleasant Street, Lynn, Mass.

Gentlemen:

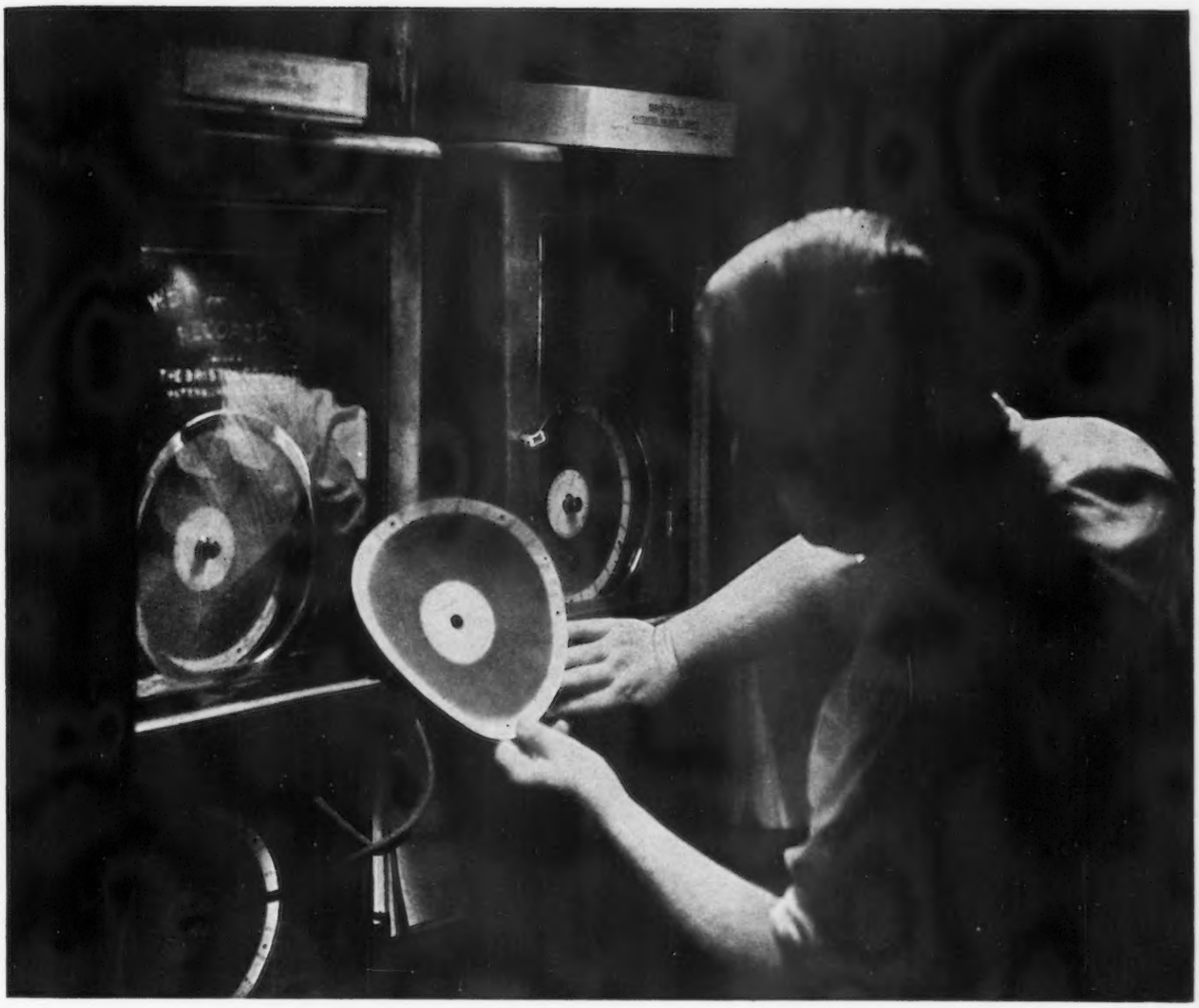
☐ Please ask your nearest engineer to arrange for an appointment at our plant.
☐ Please MAIL information on the welding of

Product .....Metal .....

Approximate dimensions .....

Desired production per hour .....

6069



Guarding Quality OF BIRDSBORO STEEL CASTINGS

BY UNTIRINGLY WATCHING and recording temperatures throughout the annealing process, these two Bristol's Recording Pyrometers are an invaluable help in protecting the recognized quality of Birdsboro steel castings. As this well-known concern puts it, "they are relied on for affording the close metallurgical control essential in process of manufacture".

Regularly furnished with an automatic internal cold-end compensator, Bristol's Model 437 Pyrometer operates independently of temperature conditions at the recorder. It employs the patented frictionless smoked chart recording system, a superior method that eliminates any retarding action of the pen arm due to friction.

The round form of chart is easy to read, easy to handle, and convenient to file for future reference. Providing a continuous graphic record for 24 hours or 7 days as desired, it shows at a glance any fluctuations and temperature irregularities.

Furnished in one size using 8 inch round chart. For a large number of ranges up to 3000° F. Write for Catalog 1403-RC describing Bristol's Round Chart Recording Pyrometers.

★

Photograph shows two Bristol's Round Chart Recording Pyrometers, Model 437, in the Annealing Dept., Steel Foundry Division, Birdsboro Steel Foundry and Machine Co., Birdsboro, Pa.

THE BRISTOL COMPANY
WATERBURY CONNECTICUT
Branch Offices: Akron, Birmingham, Boston, Chicago, Denver, Detroit, Los Angeles, New York, Pittsburgh, Philadelphia, St. Louis, San Francisco

BRISTOL'S

TRADE MARK REG. U. S. PAT. OFF.

PIONEERS IN PROCESS CONTROL SINCE 1889

For Completeness Use
HAUSER-STANDER
TANKS!
—WOOD
—RUBBER LINED
(WOOD OR STEEL)



Rubber Lined Storage Tanks



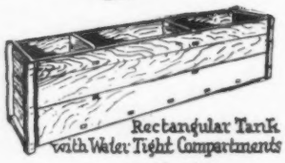
Rubber Lined Tank Car



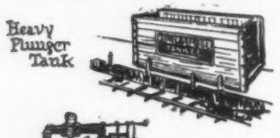
20 ft. Elliptical Tank



Concave Bottom Tank



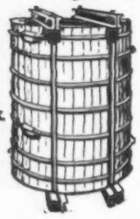
Rectangular Tank with Water Tight Compartments



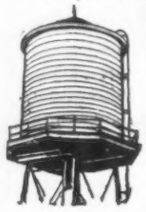
Heavy Plunger Tank



Tank Equipped with Self-Contained Agitator



Pressure Tank



40,000 Gallon Sprinkler Tank

THE *Write for Catalog!*
HAUSER-STANDER
TANK CO.
CINCINNATI, OHIO

(Continued from Page 84)

consciousness which heretofore has not existed.

Fortunately, class consciousness has been notably absent from the American scene. No caste systems exist in the United States as in other countries. Yet the strategy of the American Federation of Labor, and of every union, is to create a class consciousness, to organize labor into a solid front, a battle-line against management. A barrier thus is established to that cooperation between management and labor which is indigenous to the American system of government, to American traditions and to the American attitude toward the social group. In line with the best thought of today, emphasis upon inevitable class struggle should give way to that more civilized and humane cooperation which James Truslow Adams has aptly called "social synthesis."

The Chevrolet Motor Co. was among the first companies in the automobile industry to establish employee representation after the passage of the National Recovery Act. The Chevrolet employees' association and works council was organized to promote cooperation between the company and its men regarding hours of labor, wage rates, working conditions, safety and accident prevention, promotion of health, welfare of employees and "efficiency and economy of operation and other matters affecting employees' interests."

Any production worker is eligible to join. If he is laid off temporarily, he may retain his membership. Representing the employees' association in its dealings with the management is a works council consisting of one representative for every 300 employees, but not less than five in any one plant. Any member of the association is eligible for election to the council. A representative serves a one-year term, but is limited to not more than four terms. He may be recalled by petition signed by two-thirds of his constituents, who consist of workers in a department or group of departments.

Elections are held on company time and controlled by a committee of employees appointed by the works council. Meetings are called once a month, or oftener if requested by the council or the company. Employee representatives are paid their regular rates for the time spent at council sessions. The plant manager or his representative is present only when requested.

An employee may make a complaint direct to the works council or through his employee representative. The council handles matters pertaining to its own plant with the plant manager. If the two parties fail to agree, the general management of the company takes up the subject at issue with the council. If all of the company's plants are involved, the management discusses the question with a general works council committee, composed of the chairmen of the works councils from the individual plants.

The general plan of employee representation at Chevrolet, with minor variations, is followed by all other General Motors divisions.

The employee representation plan of the Chrysler Corporation is of the joint council type as opposed to the works council type sponsored by General Motors. It "provides an opportunity for employees to have an equal voice with management in deciding jointly all matters affecting wages and working conditions." Its purpose is "to establish a mutually satisfactory way of settling any differences which may arise between employees and management, including rates of pay, shop rules, working conditions, safety, hours of labor, plant sanitation, employees' transportation and recreation." It likewise offers a means of "friendly and lasting cooperation between employees and management on the basis of mutual confidence and understanding."

All shop employees on the corporation's payrolls on the day of nominations to a joint council are entitled to vote. On that day each employee has the privilege of nominating two qualified employees in his voting district as candidates for election as represntatives in the council. The two employees receiving the highest number of votes then stand as candidates for election. The candidate running second at the election for representative serves as alternate to the elected candidate. One-third of the employees in a voting district may petition for recall of their representative, whereupon a special election is held.

The Joint Council

The joint council consists of employee representatives from all Chrysler manufacturing divisions and representatives of the management. The chairman of the council is a special representative of the management who has no vote and who acts as a liason agent between the employee representatives and the management. Employee representatives and management representatives have equal voting power in the council, with a two-thirds vote necessary to

(Continued on Page 88)

DIRECT EVIDENCE OF INCREASED MACHINABILITY

J&L *Improved* BESSEMER SCREW STEEL

NO CHANGE IN CHEMISTRY OR PHYSICAL PROPERTIES

60%
PRODUCTION INCREASE
1⅛" Round, Cold Drawn
J&L *Improved* Special High Sulphur Bessemer Screw Steel

42.8%
PRODUCTION INCREASE
¾" Round, Cold Drawn
J&L *Improved* S.A.E. 1112

10%
PRODUCTION INCREASE
⅝" Round, Cold Drawn
J&L *Improved* S.A.E. 1112

50%
PRODUCTION INCREASE
$\frac{3}{16}$" Round, Cold Drawn
J&L *Improved* Special High Sulphur Bessemer Screw Steel



20%
LONGER TOOL LIFE
¾" Hexagon, Cold Drawn
J&L *Improved* S.A.E. 1112

33%
PRODUCTION INCREASE
¾" Round, Cold Drawn
J&L *Improved* S.A.E. 1112

11%
PRODUCTION INCREASE
¾" Round, Cold Drawn
J&L *Improved* Special High Sulphur Bessemer Screw Steel

These production increases resulted from: longer tool life, greater cutting speed or increase in feed, made possible by the radically improved machining quality of J&L *Improved* Bessemer Screw Steel. Improved appearance, too, was obtained. This increased machinability is found in both S.A.E. 1112 and J&L Special High Sulphur Bessemer Screw Steel, in hot rolled bars, cold finished bars, and drawn wire. Write for descriptive bulletin.

J&L STEEL

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AMERICAN IRON AND STEEL WORKS
JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

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TO SIMPLIFY - - - -

clamping equipment on your special work holding fixtures; to select from a complete line of styles in cushioned or non-cushioned types, the style that best suits your application; to be sure of long, trouble-free service, use - - - -

"HOPKINS" NON-ROTATING DOUBLE-ACTING AIR CYLINDERS

Write for catalog

THE TOMKINS-JOHNSON COMPANY
628 N. Mechanic Street Jackson, Michigan

(Continued from Page 86)

decide any question. Council meetings are held monthly, but a special meeting may be called at any time at the request of three employee representatives.

If an employee has a grievance which he is unable to settle direct with his foreman, he may refer it to the employee representative for his district, who attempts an adjustment with the foreman. If no agreement is reached, the employee representative and the foreman, together with the chairman of the joint council, prepare a statement to be submitted to the foreman's superior officers. If no settlement then is made, the matter is referred to the council.

After an investigation and thorough discussion, the council takes a vote which requires a two-thirds majority. If there is disagreement, at the second meeting following the one at which the matter first was presented the controversy is referred to the operating vice-president of the plant in which the council is located. He may confer with the joint council as a whole, or a committee from it, or any group of employee representatives.

Within 10 days after the matter has been referred to him, the vice-president must propose a settlement or recommend arbitration. In the latter case, the vice-president and an employee representative chosen by the employee members of the council select a disinterested arbitrator. If they cannot agree on a third party, each selects an arbitrator. If the two arbitrators then reach a decision, their ruling is final. If they disagree, they call in a third arbitrator and a decision of two of the three is binding.

The written plan of employee representation of the Chrysler Corporation makes the following pledge, "It is understood and agreed that employee representatives shall be free to discharge their duties in an independent manner, without fear that their individual relations with the company may be affected in the least degree by any action taken by them in good faith in their representative capacity."

Overwhelming Endorsement

Before the Chrysler Corporation put its joint council plan of employee representation into effect, it asked its employees to vote by secret ballot on whether they wanted it. They endorsed it by more than 28,000 out of 31,000 votes cast.

Other companies at Detroit have set up employees representation plans similar to those of General Motors and Chrysler, although differing from them in minor details. In the case of one prominent manufacturer, the works' council elected as its president a worker who also was president of the local A. F. of L. union. Members of the council soon became dissatisfied with his leadership and ousted him. His successor, also vice-president of the local A. F. of L. union, lasted little longer than his predecessor, the members asking him to resign and appointing a third head. This action was not influenced by the management, which does not participate in the council's sessions.

What has employee representation done for the automobile worker? Has it gained for him anything which he didn't have before? Is he satisfied with it?

The reply to these questions depends on the individual plants about which one speaks. In companies where management has made a sincere effort to better conditions and to see that employee representation functions fully and freely, employees have gained many tangible benefits. Here, let it be said, union organizers have made the least progress, and the issue of outside unions is not so virulent as elsewhere.

However, in the company which is merely giving lip service to its employee representation program, outside unions have acquired considerable strength. It doesn't take long for employees to discover whether an executive's heart is in his official pronouncements. There is nothing which the average worker dislikes more than hypocrisy.

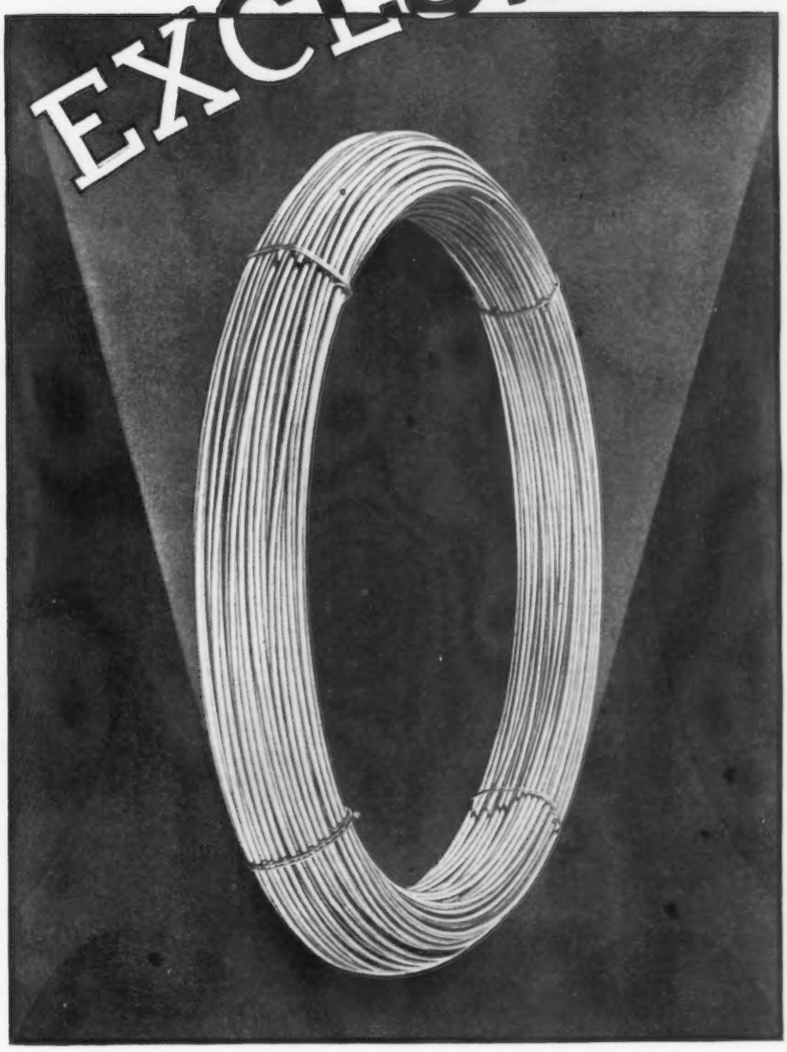
As to the tangible benefits secured by workers, many group rates which have been out of line have been satisfactorily adjusted. Where the men have requested it, the management has substituted a straight day rate for a group bonus system. In individual cases, companies have agreed to compensate men working on piece rates for idle time due to factors beyond the

(Continued on Page 90)

	Rates Per Hour						
Industries	1926	1927	1928	1929	1930	1931	1932
Automobiles	46.1	46.3	57.2	49.9	48.2	57.7	62.0
Brick, tile, terra cotta	40.7	40.2	39.4	37.8	38.0	33.9	28.0
Petroleum Refining	47.9	44.0	45.4	45.7	48.1	47.5	42.1
Public Utilities	42.0	39.8	42.9	42.8	44.6	44.6	41.5
General Contracting	47.1	48.2	47.4	48.3	47.0	42.6	39.5

The automobile industry paid increasingly high wages during the depression and considerably higher rates than other industries, according to the above figures taken from the U. S. Statistical Abstract for 1933. These figures represent average hourly wage rates paid common labor. They are the best evidence why the automobile industry was free from labor trouble until the American Federation of Labor appeared on the scene in June, 1933, bulwarked by a sympathetic national administration and by Section 7-a of the National Industrial Recovery Act.

EXCLUSIVE..



..YET THIS VITAL INGREDIENT COSTS NO MORE

WIRE for manufacturing—made by the American Steel & Wire Company—contains one vital and exclusive ingredient. It is the "individualized service" that fits a wire of certain size, grade or analysis to your particular requirements. We say "exclusive" because this service is based on wide experience. This personal service—combined with unsurpassed manufacturing facilities—control of material from mine to manufacture—the strictest of supervision to assure an all around superior quality—naturally results in wire of utmost dependability and constant uniformity. And so—whatever your needs—however different your application problem may be—a perfect and economical solution awaits you here. Your inquiry is invited.

◆

Premier Spring Wire, Weaving Wire, Pin Wire, Bolt, Rivet and Screw Wire, Broom and Brush Wire, Pinion Wire, Basic and Bessemer Screw Stock, Premier Tested Welding Wire, Flat Nut Stock, Hair Pin Wire, Mattress Wire, Music Spring Wire, Cold Finished Steel Bars, Pump Rod Bars, Wool Wire, Piano Wire and Wire Rods. Also U S S Stainless and Heat Resisting Wire.

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NOISE IS OUT!

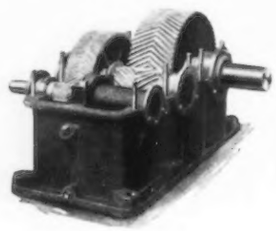
Some engineers associate gear drives with noise. When considering the adoption of gear drives they imagine that there may be trouble from noise and vibration.

Noisy gears and gear units need no longer be tolerated. When made in accordance with the best present-day practice they are invariably silent.

It is significant that Farrel-Sykes continuous tooth herringbone gears are extensively used in applications requiring smooth performance as well as the ability to withstand heavy loads and shocks.

Our study of gear operation under every condition experienced in industry has made possible the design and manufacture of gears that are silent and smooth running, even at very high speeds.

You are invited to make use of our engineering experience and plant facilities when you next need gears or gear drives.



Farrel-Sykes continuous tooth herringbone gears are made in a complete range of sizes from ¼ in. to 20 ft. dia., ¾ in. to 84 in. face, 24 D.P. to ¾ D.P., for any application.

Gear Units in any size from 1 to 10,000 H.P., any required ratio.

FARREL-BIRMINGHAM COMPANY, INC.

333 Vulcan St., Buffalo, N. Y.

(Continued from Page 88)

men's control. Steps have been taken to compensate men who are asked to report for work and then are sent home.

In certain instances, shop working conditions have been improved and additional safety measures put into force. At the request of its workers, one company agreed to a plan for weekly instead of semi-monthly pay disbursements, although the change cost thousands of dollars in increased bookkeeping and handling. Another company, complying with the request of its employees' council, is spending $25,000 to provide a recreational hall where its workers may gather at the noon hour.

Intangible Benefits

The tangible benefits already realized through employee representation are no greater than the intangible benefits. Employees are learning more about the problems confronting management. They have discovered that the top executives are human, with the same sort of emotions and reactions as they. Management has found out that for years it has been paying too much attention to finance, sales and plant equipment and not enough to its employees. It left almost all its direct contacts with factory workers to minor executives, such as foremen, although the problems of satisfactory human relationships were worthy of the time and effort of the highest-paid executives.

This mistake is now realized. Still greater rather than less emphasis will be put on educating foremen and other shop executives in the all-important task of human relationships. In fact, the foreman is more the key man in industry today than he ever has been. However, management will not again make the mistake of delegating to subordinates its contacts with the rank and file of its workers, but will insist that this duty be recognized by higher executives as one of their chief jobs. After all, satisfied workmen mean efficient production, and efficient production results in lower manufacturing costs and greater earnings.

TRADE PUBLICATIONS

Bronze.—Chase Brass & Copper Co., Inc., Waterbury, Conn. Large illustrated booklet describing Olympic Bronze, a high copper alloy containing silicon and zinc. This material is designed for structural and engineering purposes, and the description gives complete metallurgical, mechanical and physical data.

Flash Welders.—Thomas-Gibb Electric Co., Lynn, Mass. Folder describing a number of types and sizes of flash welders available for almost every variety of production requirement.

Insulating Refractory.—Chicago Fire Brick Co., Chicago. Folder introducing a new insulating plastic called Pire which is particularly adaptable for use in intermittent furnaces where actual operating temperatures do not exceed 2500 deg. F. It is very light in weight, and heat loss by leakage is said to be very low.

Chrome Cement.—Botfield Refractories Co., Philadelphia. Improved material called Adachrome super-cement which remains in suspension indefinitely. Has very little shrinkage or expansion, and when used to lay up fire brick or for surfacing work will withstand a temperature of 5335 deg. F.

Bar Design.—International Nickel Co., Inc., New York. A large illustrated booklet showing large modern bar installations in which Monel Metal is used to a great extent.

Jointless Firebrick.—Plibrico Jointless Firebrick Co., Firebrick, Ohio. A large illustrated catalog describing the installation and advantages of solid, jointless refractory material.

Heat-Treating Furnaces.—Standard Fuel Engineering Co., Detroit, Mich. A large folder giving specifications and operating statistics on a large line of gas and oil oven furnaces for the heat treatment of steel. Also includes pot furnaces for metal melting, lead hardening, and cyanide or salt bath installations.

Chain Drives.—Baldwin-Duckworth Chain Corpn., Springfield, Mass. Large catalog giving engineering data on correct chain drives, arrangement of sprockets, center distance and alinement, tension and slack, lubrication, and other factors necessary for the installation of chain drives of all sorts.

Die Steel.—Firth-Sterling Steel Co., McKeesport, Pa. Folder describing characteristics of chromium alloy hot-work steel developed for application where dies or tools are subjected to heavy pressure or impact while in contact with hot metal.

Wire Products.—Firth-Sterling Steel Co., McKeesport, Pa. Folder describing complete line of high-speed steels, tool steels, and stainless steels in bar, rod, and wire forms.

Industrial Dial Scales.—Kron Co., Bridgeport, Conn. Illustrated folder containing engineering data and operating characteristics for a large line of platform, bench, portable, pan, and counting scales for industrial applications.

Cold-Drawing Machinery.—Aetna-Standard Engineering Co., Youngstown, Ohio. Illustrated booklet showing installations of mechanical tube and bar drawing machinery with all associated machinery.

Leveling and Straightening Equipment.—Aetna-Standard Engineering Co., Youngstown, Ohio. Booklet showing complete units for use in plate, sheet, strip, tin plate, tube, pipe, bar, and shape mills.

Brushes.—Osborn Mfg. Co., Cleveland. Catalog No. 180. 80 pages. This is a general brush catalog illustrating and describing the more popular numbers of the Osborn line of brushes. Information is included that will aid the buyer or user in the selection of the correct type of brush to meet specific requirements. In addition there is a two-page chart to help in the selection of wire wheel brushes. A page of helpful suggestions on the proper care of paint and varnish brushes is included, as well as interesting and helpful facts about many different types of brush materials.

Further investigations indicating the feasibility of producing sponge iron from Texada Island (British Columbia) ore and from Moose Mountain (Ontario) ore are reviewed in the annual report for 1932 of ore dressing and metallurgy of the Department of Mines of Canada. Most of the volume, which is of 287 pages, published at Ottawa, is devoted to investigations of non-ferrous metallic ores and non-metallic minerals.

JUST BETWEEN US TWO

Greater Love

IN its day The Iron Age has received some generous compliments, but this from a hardware manufacturer caps them all:

> "I haven't the money now to pay for the subscription, but expect to get some as soon as we have a court hearing. If this fails to produce results *I will borrow some money on my life insurance.* I get a great deal of good out of your paper."

Exhausted Adjective; Belabored Verb

WHEN are the lady copywriters going to stop referring to everything as "grand"? We are glad to see that only those whose timing is always a year late are still torturing "contact" into use as a verb.

Contrary Cusses

IF Henry G. Weaver, who conducted General Motors' gigantic customer research, is right even the wildest estimates of human perverseness have been flatteringly low. To a certain group of motorists he sent a questionnaire, ending with, "We are very anxious to get your reactions, etc." The response was 21%. To another group he mailed the same questionnaire, ending with, "We wouldn't think of asking you to bother, etc." Seventy-two per cent bothered!

By the way, that splendid little book, "The Automobile Buyer's Guide," containing the results of the research, leads off:

> "We asked owners this question: *'In choosing a car, whose advice would you seek?'*
> They answered: *'The advice of other owners.'"*

Which is exactly why we keep harping on the wisdom displayed by those astute advertisers who ask their customers what trade papers they prefer.

Solved, B'Gosh!

THANKS to G. D. Allen, Pratt & Whitney's Cleveland manager, we won't die wondering how to do that "Whitfield six" bridge problem published here May 24. If curious, drop us a line.

Bouquet Tossers

ORCHIDS are flying thick and fast these days. A few sample blooms:

> *"Prefer The Iron Age to any other magazine or paper. I have been much interested in the articles concerning the labor controversies for the past six months."*—A steel operating executive.
>
> *"We have found that your gossip concerning the automobile industry has been very accurate, and are always interested to see what that department has to say."*—J. M. Watson, Hupp Motor Car Corpn.
>
> *". . . the one paper to which I have been a consistent subscriber. I have found your articles under the heading 'This Week on the Assembly Line' and 'This Week in Washington' of particular interest."*—B. C. Saunders, Secretary, The Gallmeyer & Livingston Co., Grand Rapids, Mich.

Selling At Its Worst

THE weakest remark a salesman can make, and it's made pretty often, is "I'd like to get your business." It's so asinine, for if he didn't he wouldn't be there. As Kelley or Sheats might have metered it

> *"In selling, the height of dizziness*
> *Is to say, 'I crave your business.'"*

Striking

OF John H. Van Deventer's editorial, *"Back of Achievement Lie the Shadows of Men"* (page 11, May 31 IA), B. F. Downey, Secretary and Treasurer of the Yost Superior Co. Springfield, Ohio, writes:

> *"This is a most striking editorial and should be placed before more business executives."*

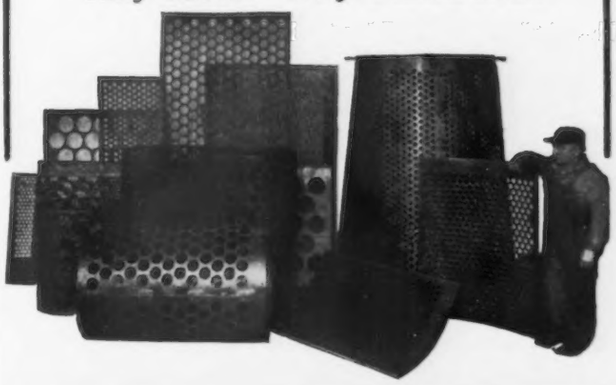
Check! say we. But if all the 51,000 or so metal-working executives who are exposed weekly to the influence of The Iron Age didn't see it, it's their own fault, a fault which will be speedily eradicated for those recalcitrants who write for a clipping.—A.H.D.

SCREENS of Perforated Metal

For a Thousand Uses

For Grain, Minerals, Chemicals or any other material to be screened
Ornamental Designs for Grilles, Cabinets, etc.

Any Metal—Any Perforation



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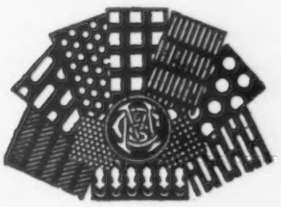
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Large stocks of all metals always in hand ready to punch for any arrangement of perforations.

Sixty-one years of manufacturing perforated metals for every conceivable purpose assures satisfaction.

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Spin-Twist and Cascade brands are special belts for
HOT SAWS, LANDIS GRINDERS, COMPRESSORS,
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AUTOMATIC FEEDS
AUTOMATIC THREADING MACHINES
THE V & O PRESS CO., HUDSON, N. Y.





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CLIPPER BELT LACER CO., GRAND RAPIDS, MICHIGAN

Clipper
Lacing Equipment

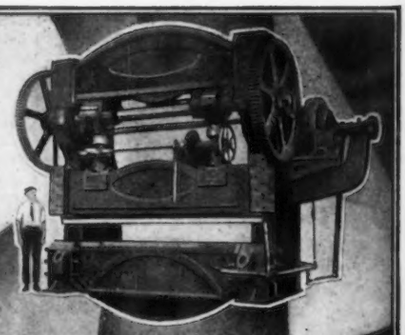
COMPRESSED AIR DRYER

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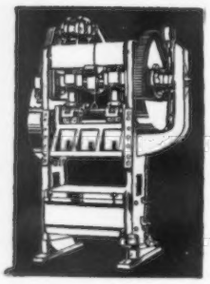
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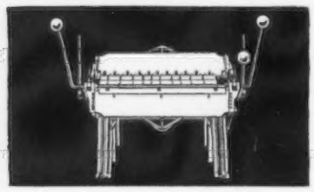


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